AUGUST • 1961

FIREMEN

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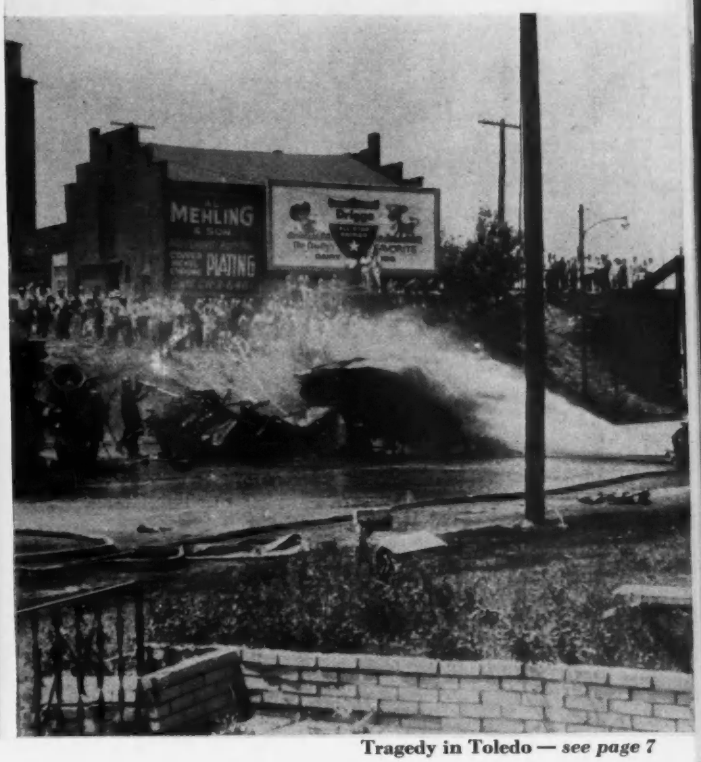
The truck and trailer

← The fire

The aftermath



Tragedy in Toledo — *see page 7*

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66th year

ADVANCING WITH FOG STREAMS - - - - page 8

WATER STILL COMES OUT THE NOZZLE page 14

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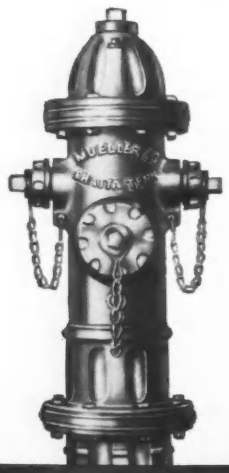

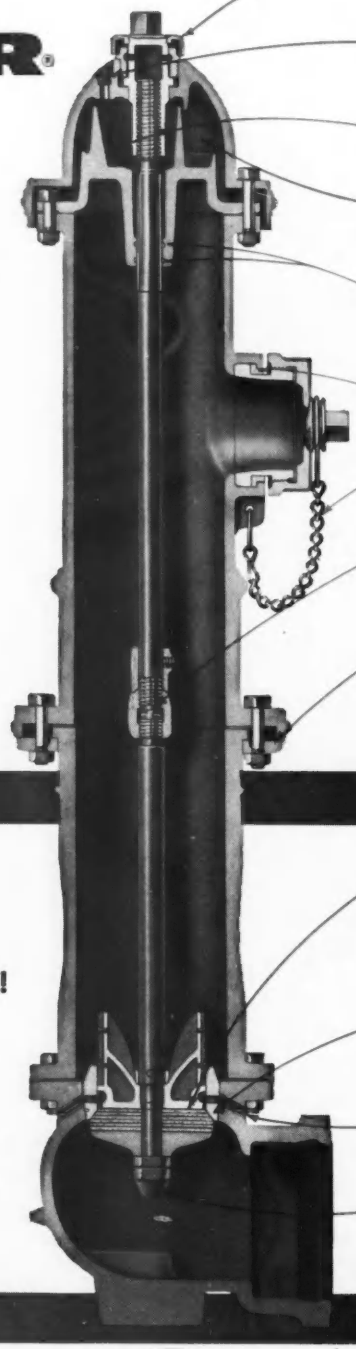

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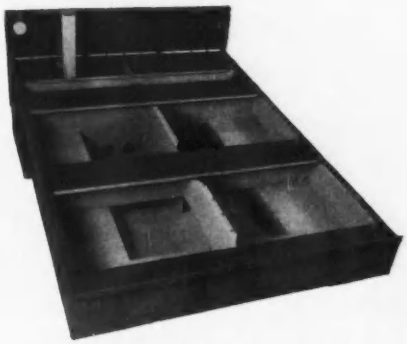
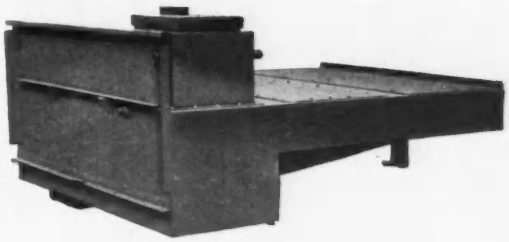


500 gallon water tank showing removable covers, sloping bottom and deep outlet sump to utilize full water capacity.



Exterior of 500 gallon water tank illustrating front fill with deep outlet sump sloping bottom.
(Rear fill optional)

THREE REMOVABLE COVERS are provided on the 500 gallon water tank top side permitting full opening for inspection and cleaning. All covers are rubber gasketed. The forward cover includes the fill tower and vent tube cover as integral parts.

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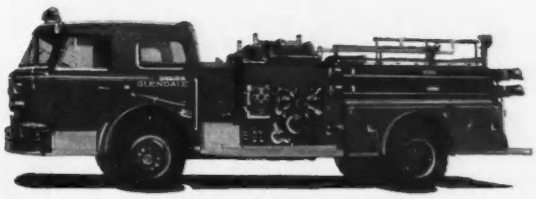

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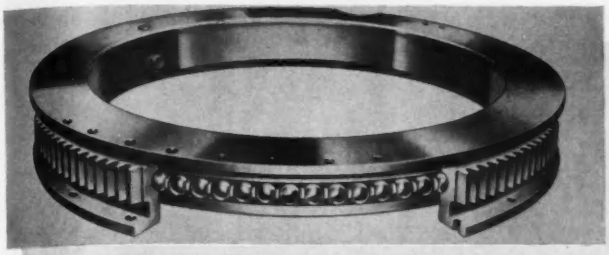
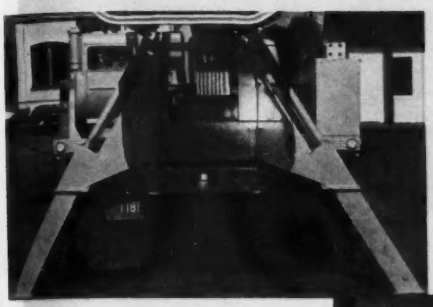
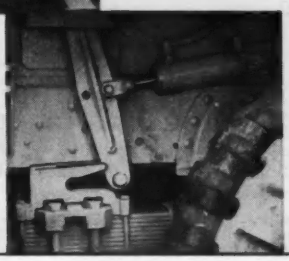


MONO-RACE BALL BEARING TURNTABLE. Balls interlock two races together. Turntable cannot tilt, lift off or shift sideways. Sealed top and bottom to keep out foreign matter.

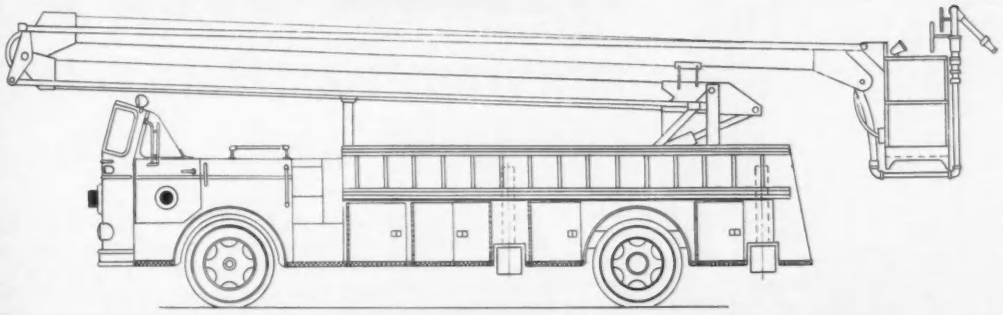


SELF-LOCKING OUTRIGGERS stabilize truck and keep it in level position.

SPRING LOCKOUTS prevent axle springs from flexing during platform operation.



Demonstration of Seagrave-Cemco Eagle for rescue operations. Extended height measured from ground level to bottom of platform making it several foot higher than competitor's platform.



Engineering drawing showing Seagrave-Cemco Aerial Platform in "bed" position on Seagrave custom chassis.

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NFPA FIREMEN

Volume 28 Number 8

A monthly magazine published for the fire service members of the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Massachusetts.

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Civil Defense to the Pentagon

By executive order, President Kennedy shifted operating responsibility for an accelerated civil defense effort from the Office of Civil and Defense Mobilization to the U. S. Department of Defense. Under the order OCDM will be retitled the Office of Emergency Planning and will remain under Director Frank B. Ellis as part of the "White House" executive office.

The directive indicated that the Pentagon will be in charge of fall-out shelters, the present OCDM warning system and a program to assist state and local communities in such post-attack services as maintenance of law and order, fire fighting and debris clearance.

It is too early to indicate what effect the transfer of civil defense responsibility will have on the fire defense program. For the past several years a fire advisory committee representing all national fire protection groups including NFPA, NBFU, IAFC and IAFF and the U. S. Forest Service have been working constantly to improve fire defenses. This group was instrumental in advising OCDM in the preparation of Annex 21 of the national fire defense plan which specifically concerns fire defense at federal, state and local levels.

The fire training subcommittee of the national fire advisory committee, headed by Robert C. Byrus, director of the Fire Service Extension at the University of Maryland, has been particularly active. With the help of this committee OCDM last year conducted four regional seminars on fire command problems. During the present year the fire defense training subcommittee has been planning a national two weeks' seminar on fire command problems scheduled to be held at the OCDM Staff College at Battle Creek in October. This was to be an invitation affair of an experimental nature, limited to hand-picked fire officials from each state. It was believed that a successful course of this nature might lead to a national fire command school similar to the FBI Academy for police officers. While Director Ellis had approved the command school project authorized under his predecessor, Governor Hoegh, it is too early at this writing to state how the transfer of fire defense responsibility to the Department of Defense may affect the work of the National Fire Defense Advisory Committee and the plans for the national fire staff and command school at Battle Creek under OCDM auspices.

On the morning of June 10 members of the Toledo, Ohio, Fire Department were victims of an unusual fire occurrence. Just as the first hose line went into action on a fire-involved gasoline truck-dual trailer combination a tremendous blast spread burning gasoline in all directions. One fireman died, ten others were seriously burned, and two policemen and more than fifty civilian bystanders also suffered burns or injuries. Subsequently, two other fire fighters died; another still is in dangerous condition.

The cause of the violent rupture of the tank semi-trailer is being investigated, and the NFPA expects to publish a report on the incident when full details are available. At present, however, this month's cover and the following information extracted from reports by Chief Investigator Lieutenant Russell S. Meecham of the Toledo Fire Prevention Bureau summarize the important elements of this tragic incident.

The vehicle involved was a diesel powered truck and dual-tank trailer of the type shown in the top cover photo. It was carrying about 7,900 gallons of gasoline, but no markings indicated the hazardous cargo. The truck was traveling on a downgrade right-hand curve when the full trailer overturned breaking all connections between it and the semi-trailer. The full trailer came to a stop alongside of the cab of the tractor unit and a severe fire immediately broke out which enveloped truck and trailers in flames. A businessman who saw the entire incident telephoned an alarm to the fire department. A box alarm was also pulled.

Toledo fire fighters struggled to get hose lines into operation and at the same time to keep back curious bystanders. Just as the first streams were placed in operation on one of the tank trailers, the blast occurred, sending scorching heat for approximately two blocks in all directions. This led to the involvement of four residential dwellings, one of which was completely destroyed and three seriously damaged. The clothing of many of the fire fighters and civilian victims was ignited by the intense heat and flames. (*Cover photo credits: lower left by Toledo Blade; lower right by Ray Ford*)

WARREN Y. KIMBALL, Managing Editor; PAUL R. LYONS, Editor; HENRY S. GERE, Advertising Manager; ROWENA D. DORES, Editorial Assistant; SHIRLEY TOBEY, Fire Service Department; VIRGINIA STILES, Advertising Department.

Official A. F. Photo — James Coolahan

Using four 1½-inch hose lines with fog nozzles discharging interlocking fog patterns producing a solid mass of waterfog for advancing to rescue points. Note that the firemen are keeping nozzles about 12 to 24 inches off the ground and are on the inside of their lines to receive maximum protection from the fog pattern.

ADVANCING WITH FOG STREAMS

ON MANY occasions fire companies must advance two or more hand lines with fog nozzles in concentrated attack. This technique would be necessary for an aircraft crash fire or rescue, a flammable liquids spill fire, or perhaps for protecting a man trying to close a valve on an LP-Gas or flammable liquid installation during fire conditions.

The fog streams have a dual purpose: to push away or diminish the intensity of fire in front of the advancing crew and to protect the nozzlemen, rescuers or other persons involved in the advance. Accordingly, the streams must be discharged in the most efficient patterns for the particular fire situation to bring this cooling, protective effect.

In such an advance, *teamwork* is essential. During a flammable liquid fire, lack of teamwork can lead to a flashback in the fuel vapors, creating an extremely dangerous situation for fire fighters in that vicinity.

Every man involved in this type of fire attack has a responsible role. Each nozzleman must consider his own mission and safety as well as that of every other man participating in the attack. He must rely on his training and experience to direct the fog stream in an effective pattern to coincide with the streams directed by other nozzlemen.

Each man handling a line must be sure that no motion is wasted and that the hose is moved so that the nozzleman can do his work with a minimum of effort. Each man relying on the protective effect of the stream patterns must coincide his motions with those of the men handling the nozzles and the lines. Each officer supervising the advance must exercise good judgment of the potential effect of the fire attack and the relative dangers to the men involved. Each pump operator must be alert to supply the correct pressures to produce the most effective nozzle discharge.

What can go wrong? Here are a few possibilities to consider: A nozzleman might stumble and fall, then get up with burning flammable liquid on his bunker clothes. Someone has to turn a stream on him to knock down the flames, or possibly he may need physical assistance.

A hose line could burst, say in the center of the attack, breaking the protective fog curtain. Immediately the other nozzlemen have to adjust their fog streams to the new situation.

A strong wind or the updraft of the fire can disperse the fog streams, rendering them ineffective. With adjustable nozzles, the nozzlemen can change to streams of longer reach, but again the protective fog curtain is lost. Once the cooling effect of the fog pattern is broken, the crew may have to withdraw somewhat. It is just as important to coordinate this movement as the attack. The only protection the hosemen and nozzlemen may have in such moments comes from the hose streams. Therefore *never* drop a line and attempt to run. The withdrawal must be made carefully with the nozzlemen directing or changing the stream patterns for the greatest protection against the heat.

Because of what can happen, a crew with a charged line should always follow behind the advancing lines to protect the men on these lines in case of an accident or other emergency.

Noise of the fire or other activity may smother the sounds of verbal commands. This is the time for the officer to make his commands known by hand signals or by pressing or pulling on the men's shoulders. If the

Official A. F. Photo — James Coolahan

Foam used in conjunction with waterfog. Your fog nozzles are being used from 1½-inch lines with the back-up man directing a foam nozzle to secure the path and cover any spilled fuel with a foam blanket.

officers and men previously have practiced this "silent signaling," it can be very effective during this fire action. However, the men on the flanks of the attack, beyond reach of the officer, must be alert to any quick changes in direction or stream patterns made by the nozzlemen receiving direct commands from the officer.

Every fire department can benefit by developing the best possible teamwork for this type of coordinated attack. It is essential for men to be familiar with the gpm discharge and the patterns of available fog nozzles. We assume that each fire fighter will know the basic techniques of advancing 1½- and 2½-inch hose lines. It will be discovered soon enough that the lines cannot be advanced properly unless sufficient manpower is allocated to move the lines. If adequate manpower is not available the attack will soon lose coordination and probably will bog down. This can be dangerous.

Most fog nozzles for hand lines are designed to produce their best patterns and discharge when operated at 100 pounds nozzle pressure. In training, pump operators should be given realistic problems to provide this optimum pressure for various lengths of lines at different elevations.

Officers directing this type of mobile attack should be considering the quantity and type of fuel involved by fire, the slope of terrain which might have an important effect on fuel spread, and the wind direction, which, of course, could be a significant factor in the operations of hose streams. In most situations, fog streams can be applied effectively only when they are brought in from the upwind side of the fire, but, for every fire, a fire department should try to make its attack from at least two positions.

One other fundamental to consider is that it is always well to have lines ready for supplemental attack in case the crew, moving in with the fog nozzles, are endangered by flashback or some other serious threat. For flammable liquid spill fires, foam is frequently used in conjunction with the waterfog attack to smother fire on the ground behind the nozzlemen.

For most situations it is preferable that the fog patterns stay the same during the advance (or retreat), since if just one man narrows a fog cone of discharge, the protective curtain breaks.

With adjustable fog nozzles there will be occasions when a narrow cone, long reach fog, or perhaps a straight stream, would be desirable for a few moments, say to push away a pool of burning flammable liquid, but for such instances the entire crew should be able to anticipate the change in technique.

Effective coordination is gained by having an officer moving forward between the two nozzlemen holding one hand on each man's shoulder. In this way he can shout commands to the crew, or direct their advance or change in direction merely by pressure on their shoulders. Men who are assigned to rescue missions under the protection of such fog patterns also can maintain the best communications by staying near the nozzlemen.

These operational techniques are mentioned in a new edition of NFPA No. 406M — "Guide for Aircraft Rescue and Fire Fighting Techniques for Fire Departments Using Conventional Apparatus and Equipment." The photos on these pages are taken from the new pamphlet. So are the following paragraphs:

The number of hose lines and quantity of water will be determined by the availability of water and equipment. Maximum use of all equipment is normally dictated by the size of the fires and the severe potentials presented by large quantities of fuel. All lines should be readied.

A group of four 1½-inch lines with fog nozzles has proven to be a good operating procedure. With the four fog nozzle patterns interlocking each other, a solid mass of waterfog can be advanced to the aircraft. By keeping lines about 12 to 24 inches off the ground, the hosemen can avoid stirring up puddles of fuel which would increase the rate of vaporization. Firemen should be on the inside of their lines so that they will receive the maximum protection from their fog pattern. When advancing, the two end linemen stay at the edge of the fire, while the two inside lines are advanced into the hole opened up by the solid mass of waterfog. This

Official A. F. Photo — James Coolahan

Here high pressure waterfog is used in the center two lines, with standard pressure waterfog on flanking lines. Note the officer in the center, guiding, by shoulder signals, the manipulation of hand lines by the two inside fire fighters. When this picture was snapped there was an obvious gap in the interlocking waterfog patterns which could be very hazardous.

procedure will open a path large enough for rescue to be made from either the tail or nose sections, depending which way the advancement was made. The advancement to the nose or tail section depends on wind direction. By advancing with the wind at the firemen's backs, greater reach is obtained with the fog streams, and less heat exposure to the men is experienced. Firemen can also see how their hand lines are operating better than they could if they were making their attack from the downwind side with the smoke coming at them.

Another method of attack that has proven successful is with four 1½-inch fog nozzles, using on the two outer lines applicator nozzles (low velocity fog), and on the two inside lines the regular type fog nozzles (high velocity fog). If a fifth line is available with an applicator nozzle, this line can cover the rescue men throughout the entire operation.

Official A. F. Photo — James Coolahan

Here four 1½-inch lines are used, with the two outer lines employing low velocity fog with applicator nozzles while the two inside lines are employing high velocity fog with regular type fog nozzles.

WHY USE THE BIG PUMPERS?

Some of the reasons for selecting big pumpers for big jobs.

IN MOST cities which have only occasional large fires the 1,000 gpm pumping engine is the standard heavy duty unit. However, cities which expect more frequent multiple alarm fires often find it advisable to use pumpers having greater rated capacities. Standard No. 19, Specifications for Motor Fire Apparatus, sets forth five standard sizes of pumping engines, all rated to give capacity at 150 psi net pump pressure. These are: 500 gpm, 750 gpm, 1,000 gpm, 1,250 gpm and 1,500 gpm. Usually, in present practice, the 500 gpm size is reserved for rural fire apparatus, 750 gpm pumpers for suburban residential districts, 1,000 gpm pumpers for normal urban service, 1,250 gpm and 1,500 gpm pumpers for industrial districts and other areas where both large volumes and high pressures may be needed.

It is not always appreciated that, where pumpers must work at net pump pressures higher than 150 pounds, as when pumping through long lines or when supplying heavy stream devices needing 80 to 100 psi nozzle pressure, ability to give the required flow at 200 psi or more may be the condition determining the size of pump selected. With standard pumping engines, the following capabilities are required at 200 psi net pump pressure at draft:

Rated Capacity GPM	GPM Capacity at 200 psi
500	350
750	525
1,000	700
1,250	875
1,500	1,050

Thus, where 200 psi net pump pressure is required, the 750 gpm pumper is a 525 gpm machine. A 1½-inch tip on a heavy stream device requires 600 gpm at 80 psi nozzle pressure. Unless it is assisted by a strong hydrant pressure the 750 pumper is not particularly adequate for heavy stream service.

The 1,000 gpm pumper can supply a single 1½-inch tip at effective pressures. However, it cannot supply larger tips such as the 1¾- or 2-inch tips or 1,000 gpm fog nozzles unless the pump is fairly close to the nozzle. Also, where lines are long as in the case of many industrial plant fires where pumpers cannot use private hydrants and must operate from more distant public hydrants, the pumper with a 1,000 gpm rating cannot be expected to supply adequately more than two good hand lines. In such cases a 1,250 gpm or a 1,500 gpm pumper may be desirable.

Some people have reasoned that where water supplies are limited and hydrant pressures are relatively low, there would be little advantage in having large capacity pumpers. Just the opposite is the case. Take for example a 750 gpm pumper at a hydrant that will deliver 750 gpm at 60 psi residual pressure. There will be no problem in delivering 750 gpm at 200 psi because the hydrant will add to the pump's capability. On the other hand, if the hydrant provides 750 gpm at 10 psi residual, the pumper will have to do practically all the work and the 750 pumper would not ordinarily be capable of providing this flow at 200 psi. However, larger pumpers could discharge the 750 gpm at the 200 psi pressure.

There is also the fact that often hydrant capability is wasted by using it to supply a small pumper. Many hydrants on large mains can supply flows in excess of 1,000 gpm. If a 500 gpm or 750 gpm pumper is used, particularly where high discharge pressures are needed, only a small part of the water supply available at that location can be used. Other pumpers must be located further away and longer hose lines will reduce their efficiency. On the other hand, a large pumper can use all of the available supply and impart the desired pressure. For example, a 1,250 gpm pumper on a strong hydrant near the fire can supply five 2½-inch lines or two 1½-inch tips each discharging 600 gpm.

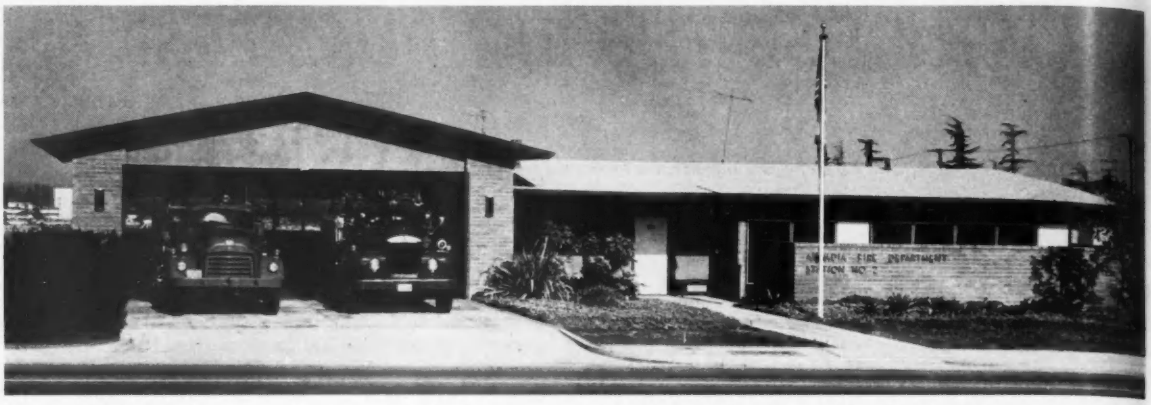
There is another factor in favor of large pumpers. If a modern fire truck has a powerful engine capable of giving good vehicle performance including quick acceleration and hill-climbing ability, it is foolish not to couple this with a pump capable of utilizing this power. As pumping capacity at ordinary elevations requires less power than good vehicle performance there is a temptation to economize on a smaller engine which can pass the 750 gpm or 1,000 gpm pumping tests but which will tend to be sluggish on the road.

It should also be remembered that a 1,250 gpm pumper can easily, with no strain at all, do all that a 500 or 750 gpm pumper can do when working at peak performance. This means that for long life at the average fire the larger capacity pump is doing the job with plenty of reserve. On the other hand, the smaller capacity unit is more subject to trouble due to overloads. In buying apparatus, expense over a 15 or 20 year expected service life should be considered. If a department wants apparatus capable of handling a number of working fires per year for the expected life, the extra pumping capacity and power provided by the larger pumpers may be the most economical choice.

Among the fire departments making extensive use of 1,250 gpm or 1,500 gpm pumpers, or both, are: Burbank, California; Cleveland, Ohio; Grand Rapids, Michigan; Honolulu, Hawaii; Jersey City, New Jersey; Long Beach, California; Los Angeles, California*; Los Angeles County, California; Memphis, Tennessee; Milwaukee, Wisconsin; Minneapolis, Minnesota†; Oakland, California; Phoenix, Arizona; Portland, Oregon; Richmond, California; San Diego, California; Seattle, Washington.

In addition to the above, New York City has a number of "high pressure" 1,000 gpm pumpers. A number of these are single stage centrifugal pumps discharging 800 gpm at 200 psi and 500 gpm at 320 psi. A standard 1,000 gpm pumper gives 500 gpm at 250 psi.

*Have several "duplex" 3,000 gpm pumpers
†Have several 2,000 gpm pumpers



Built in 1958 to replace a smaller structure, Engine Company No. 2, of the Arcadia, California, Fire Department, accommodates eight men per shift.

GROWTH IN ARCADIA

by J. E. Bateson and R. W. Kuebel

THE City of Arcadia, California, which is located approximately 15 miles from Los Angeles, is situated in the northwest corner of the fast growing San Gabriel Valley. In 1923 when the Arcadia Fire Department was officially organized, the city boasted a population of 3,500 people having as its main industry poultry raising and citrus growing. To render protection to the city, fire department equipment and manpower consisted of one 750 gpm pumper, one paid fireman and 30 volunteers. Now, in 1961, the Arcadia Fire Department, under the command of Chief Laurence J. Way, is held responsible for protecting a city of 43,000 population with 12 square miles of territory having an assessed valuation exceeding $92,000,000.

Chicken ranches and citrus groves have long since been replaced. Arcadia now boasts four major shopping and business areas, and two areas of light industry and manufacturing. Substantial residential developments have been extended over a wide area with some homes valued at $200,000.

Besides the usual fire problems confronting a city of Arcadia's size, there are one or two others that are somewhat unique. Constituting a potential fire hazard of considerable magnitude is the 13-acre warehouse and development center maintained in the city by the U.S. Forest Service. With its wood frame structures and large areas of combustible materials, fire fighters would have to utilize knowledge gained from careful and extensive pre-fire planning of this establishment to avert a major loss.

The Santa Anita race track, operated at its present site in Arcadia since 1934, is generally considered by fire officials to offer the greatest potential for a large loss fire in the city. The problems to be confronted in fighting a fire there, especially during the racing season, are tremendous. In the barn area alone, where indi-

Arcadia's Engine Company No. 3 was built in 1949.

Headquarters station of the Arcadia Fire Department holds two pumpers, an aerial ladder, a rescue truck and reserve apparatus.

vidual horses are occasionally valued as high as $1,000,000, the fear of a fire can readily be seen. However, since 1956 when an extensive sprinkler system was put into operation throughout the huge grandstand and stable area, serious danger from fire has been reduced to a minimum.

The only large loss fire at Santa Anita occurred in 1958, when, during remodeling operations, a spark from a welder's torch ignited combustible material and the flames which then spread to the plush President's Suite caused over $195,000 damage to room and contents before being extinguished.

At the present time, Arcadia's fire apparatus consists of six pumpers, ranging from two late model 1,250 gpm pumpers to a 1937 500 gpm Reo, held in reserve. A rescue truck equipped with two resuscitators, extra oxygen, cutting tools, lighting equipment and other miscellaneous tools, answered 281 alarms in 1960. A car for each chief, a 1959 Ford Station Wagon assigned to the fire prevention bureau, and a 1959 Chevrolet pick-up used as a utility truck, complete the roster.

During 1962, the department will augment its presently inadequate ladder and truck company service with the purchase of either an 85-ft. aerial ladder truck or a fully equipped "snorkel" type aerial.

Arcadia's three fire stations are all comparatively new and modern. In 1949, Engine Company 3 was built to serve the northern portion of the city, situated in the foothills of the San Gabriel Mountains. In September 1958, with all modern conveniences and designed to accommodate eight men per shift, Station Number 2 was completed and opened, replacing a much smaller structure built 21 years previously.

In December 1958, having outgrown the old headquarters station built in 1932, operations began for the new headquarters station, relocated on South Santa Anita Avenue. Designed to accommodate two pumpers, one aerial ladder or "snorkel," a rescue truck and reserve apparatus, it has at present a complement of 12 men on duty each shift. All administrative offices of the department, plus the alarm equipment room and dispatch office are located in this building. A fourth station, scheduled to be in operation by the Fall of 1962, will be constructed in the fast growing southern section of the city.

Arcadia's fire department has an authorized complement of one chief, one assistant chief, one fire prevention captain, eight company captains, two lieutenants, eleven engineers, twenty-five firemen, four dispatchers and one secretary. Fire supression personnel work a two-platoon, 67.3 hours-per-week schedule.

The fire alarm system is set up so that all emergency alarms are dispatched by a tone signal and voice paging system from headquarters to the other fire stations and to the police department. This allows all fire personnel on duty as well as the police department dispatcher to hear the location and nature of the emergency.

Arcadia's well-trained firemen maintain a rigid training schedule. New firemen receive four weeks of intensive training in the classroom and at the drill tower before going on shift. At the end of their first five months of duty a written and practical examination is given the new men to determine their fitness for permanent employment with the fire department.

Plans for the future, to further improve the department, include additional telephone alarm box installations for the commercial and industrial areas, an increase in manpower to operate the new stations, provision for one more man attached to fire prevention, modernized and larger training facilities to replace the present facilities now in use, and the addition of one more officer with the rating of Battalion Chief whose main duties would be that of a training officer. Arcadia can be proud of its fire department and the progress it has made since its beginning 38 years ago.

Fire Prevention Award

In a ceremony at the Pentagon, Washington, D. C., Assistant Secretary of the Army (FM) William F. Schaub received a National Fire Prevention Award plaque for Army Winners from Percy Bugbee, General Manager, National Fire Protection Association. From left to right are: Major General Robert A. Hewitt, Deputy Chief of Staff for Personnel; Secretary Schaub; Mr. Bugbee; Major General Keith R. Barney, Deputy Chief of Engineers for Construction; and J. M. Wolverton, Chief of Fire Protection, Office Chief of Engineers. *(Photo by U. S. Army)*

"WATER STILL COMES OUT THE NOZZLE"

by Warren Y. Kimball, Managing Editor, FIREMEN Magazine
Manager, Fire Service Department

ONE of the oldest and most frequent fire house arguments on the subject of pressure loss in fire hose starts something like this: An old-timer says:

> According to the book, pressure loss with a 1⅛-inch tip is 15 pounds per 100 feet of hose. This means that with a pump discharging at 150 pounds there should be no pressure left at the nozzle at the end of a 1,000 foot line, but any experienced fire fighter knows that this is not so. You will still get a stream at the nozzle. It may not be a good stream, but you will have a stream. How do you explain this?

Then the fun begins as some officer or pump operator tries to provide a simple, logical answer to the apparent discrepancy between official pressure loss tables and the actual result.

Of course, a pressure loss figure such as 15 pounds per 100 feet of 2½-inch hose is only a value selected to represent an average condition. Specifically, it happens to represent the approximate pressure loss when a flow of about 250 (U.S.) gpm is traveling through 2½-inch hose. In actual practice, unless the pump discharge pressure is correctly adjusted to compensate for all of the variable conditions in a hose layout, the pressure loss may be something above or below 15 pounds per 100 feet.

The fire fighter who propounds the old question has based his argument on observed fact. There *is* some water pressure left at the end of a long line. And approximately what this pressure will be is not too difficult to calculate. When we talk about a stream from a nozzle we are not talking about flow from an open hose butt. We have observed many times that a given size of nozzle tip is an opening that has a pretty direct relationship to the flow from the hose. Each size of nozzle opening corresponds to a certain length of hose in which the pressure loss in the hose equals the nozzle pressure.

Per Cent of Pump Pressure Reaching Nozzle

Length of Line in Feet	Nozzle Tips Used with 2½-Inch Hand Lines			
	⅞-inch	1-inch	1⅛-inch	1¼-inch
250	75	65	55	45
500	62	47	38	29
750	52	38	29	21
1,000	44	31	23	17
Number of Feet in Which Nozzle Pressure Equals Loss in Hose	800	450	300	200

Note: For fog nozzle flowing 200–250 gpm at 100 pounds use figures for ⅞-inch tip. For a fog nozzle flowing 300 gpm at 100 pounds use figures for 1-inch tip. (The 1-inch tip flows 297 gpm at 100 pounds.) In using fog nozzles remember that a higher nozzle pressure is wanted than is used with solid stream hand lines. Accordingly, try to select a layout that delivers 50 per cent or more of pump pressure to the nozzle. This will assure ability to supply 100 pounds at the nozzle without exceeding 200 pounds at the pump.

In the case of the 1⅛-inch tip on a 2½-inch line the nozzle pressure will equal pressure loss in the hose when the line is 300 feet long on level ground. However, it is also true that nozzle pressure with the 1⅛-inch tip will equal pressure loss in 300 feet of hose when the line is 1,000 feet long. It is as though we automatically added 300 feet to each hose layout to cover the nozzle pressure when using a 1⅛-inch tip. With a 1,000-foot line, it is as though the pump pressure was based on 1,300 feet with the last 300 feet reserved for nozzle pressure.

For example, suppose the pump pressure supplying a 1,000-foot line of 2½-inch hose with a 1⅛-inch tip is 130 pounds. (Fig. 1) What will be the nozzle pressure?

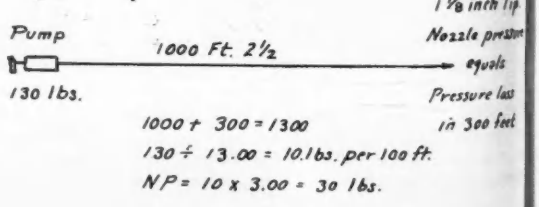
We add 300 feet to the layout, making the total pressure requirement equal to 1,300 feet. We divide the pump pressure by the number of 100 foot units, including the nozzle pressure ($130 \div 13 = 10$). Thus, 10 pounds is the loss per 100 feet *but* the last 300 feet we know will represent the nozzle pressure, so ($3 \times 10 = 30$ pounds nozzle pressure).

Incidentally, we should remember that, with 10 pounds pressure loss per 100 feet of 2½-inch hose, the flow is approximately 200 gpm regardless of the size of nozzle tip used. The flow is this instance may be confirmed by the usual formula for flows from nozzles:

$D^2 \times 29.7 \times \sqrt{NP}$ or $1.2656 \times 29.7 \times 5.4772 = 205$ gpm

Suppose that the pump was discharging at 200 pounds and the nozzle on the 1,000-foot line was at a 12-foot elevation. In this case there would be 5 pounds pressure loss due to the elevation of the nozzle above the pump. This would leave 195 pounds. Knowing that nozzle pressure with the 1⅛-inch tip is equal to 300 feet of hose we divide the pump pressure by 13, as mentioned previously. This would indicate 15 pounds pressure loss per 100 feet of hose. The nozzle pressure would be

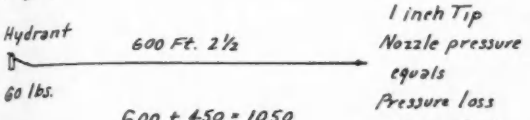
Fig. 1



equal to pressure loss in 300 feet or 45 pounds. We know that with 15 pounds loss per 100 feet of 2½-inch hose approximately 250 gpm is flowing. The flow can be confirmed by $D^2 \times 29.7 \times \sqrt{NP}$ or $1.2656 \times 29.7 \times 6.7082 = 251$ gpm.

In another situation, instead of a 1⅛-inch tip we may be using a 1-inch tip on a 600-foot line from a hydrant with 60 pounds flowing pressure. (Fig. 2)

Fig. 2



600 + 450 = 1050
60 ÷ 10.5 = 5.7 lbs.
NP = 5.7 x 4.5 = 25.5 lbs.

We usually think that with a 1-inch tip the pressure loss will be about 10 pounds per 100 feet of 2½-inch hose. At this rate, in theory, there should be no pressure left at the nozzle. We know that this is not so. With the 1-inch tip the nozzle pressure is equal to pressure in 450 feet of hose. Thus, in all cases where the 1-inch tip is used (after pressure is adjusted for elevation) there will be pressure at the nozzle equivalent to the loss in 450 feet of hose. Accordingly, if we add 450 to the 600 feet of hose from the hydrant we have an equivalent of 1,050 feet. Observation will show that 3/7 of the hydrant pressure will remain at the nozzle.

To find the nozzle pressure, the hydrant pressure of 60 pounds is divided by 10.5 representing the total layout (hose and nozzle) giving 5.7 pounds loss per 100 feet. Thus, nozzle pressure will be 4.5 x 5.7 or 25.6 pounds.

This pressure loss in 2½-inch hose results from a flow of about 150 gpm. This may be confirmed by the formula for flow from a 1-inch tip:

$D^2 \times 29.7 \times \sqrt{NP} = 1 \times 29.7 \times 5.05 = 150$ gpm

If the line with the 1-inch tip were only 450 feet long, half of the pressure would reach the nozzle. If the pressure at the hydrant with water flowing was 60 pounds, nozzle pressure would be 30 pounds. This would provide a flow of 162 gpm with a pressure loss of 6.7 pounds per 100 feet of hose.

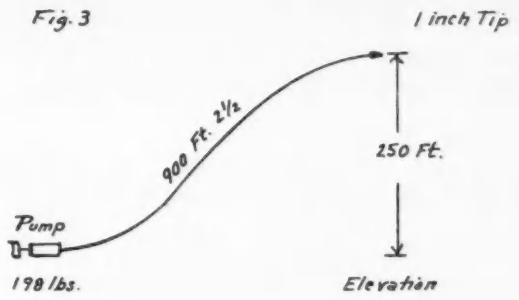
It has been observed that with a given size of nozzle orifice at the same level as the source, a certain amount of pressure will always remain at the nozzle. With a ⅛-inch tip we always have the equivalent of pressure in 800 feet of hose left at the nozzle. Thus, with a 400-foot line, ⅜ of the pressure reaches the nozzle. This may be important where a direct line from a low pressure hydrant is used without a pump for initial attack. If the hydrant pressure was 45 pounds flowing, 30 pounds would reach the nozzle with a ⅞-inch tip in 400 feet of hose.

The only significant exceptions to the principle that part of the initial pressure will always reach the nozzle are that with an extremely high hill or elevation, the pressure needed to overcome elevation might be more than the pump pressure was able to overcome, or a bad break or leak in the line might seriously reduce pressure.

Assume that a fire was on top of a hill with the nozzle 250 feet above the pump and a 1-inch tip supplied by 900 feet of 2½-inch hose. (Fig. 3) If the pump pressure is 198 pounds, what would be the nozzle pressure and flow?

We should know that a pressure of 43.3 pounds per square inch is needed to lift water 100 feet. Accordingly,

Fig. 3



108 pounds are needed to lift water 250 feet to the nozzle. This leaves 90 pounds for pressure loss in the hose plus nozzle pressure. We have already seen that with a 1-inch tip, nozzle pressure is equal to pressure loss in 450 feet of hose. It will be seen that this is equivalent to half the length of the line of hose (450+900=1,350. 1,350÷450=3). Thus, with a 900-foot line, ⅓ of the remaining 90 pounds pressure will reach the nozzle (90÷3=30 pounds nozzle pressure). We have already seen that this will provide 162 gpm.

Assume, however, that this is a working fire which calls for nozzle pressure of not less than 40 pounds. Also, a second line is needed from the pumper which happens to be rated at 750 gpm at 150 pounds. Can this pumper handle two 1-inch tips in such a situation?

We know that with a 1-inch tip, 40 pounds nozzle pressure would be equivalent to loss in 450 feet of hose. Accordingly, the loss in 900 feet would be 80 pounds or a total of 120 pounds. To this must be added 108 pounds for elevation, making a required pump pressure of 228 pounds.

A 750 gpm pumper delivers 525 gpm at 200 pounds or 375 gpm at 250 pounds net pump pressure. At 40 pounds a 1-inch tip discharges 187 gpm (1 x 29.7 x 6.3246). Two such streams would flow 374 gpm. Thus, a 750 gpm pumper should be able to supply the desired flow through two 900-foot lines, in fact it could do so at a 300-foot elevation above the pump.

Per Cent of Pump Pressure Reaching Heavy Stream Nozzle Tips*

Length of Lines in Feet	Number of 2½-Inch Hose Lines	Size of Nozzle Tip in Inches				
		1¼	1⅜	1½	1⅝	1¾
250	2	75	68	61	53	47
	3	87	82	79	70	68
500	2	60	51	43	36	30
	3	77	69	62	55	47
750	2	50	41	34	—	—
	3	69	60	51	46	39
1,000	2	43	34	—	—	—
	3	62	53	44	37	31

*Does not include losses for elevation or lead hose to ladder pipe. See NFPA manual "Operating Fire Department Aerial Ladders."

Note: For fog nozzle flowing 500 gpm at 100 pounds use figures for 1¼-inch tip. For fog nozzle flowing 1,000 gpm at 100 pounds use figures for 1¾-inch tip.

REGIONAL ROUND-UP

A spot check of progress and plans of NFPA member fire departments and other fire service organizations in various regions.

FROM *Dubuque*, Chief Thomas C. Hickson states that his fire department has a new 1,000 gpm FWD pumper scheduled for delivery in the Fall. Also planned is renovation of the headquarters station or possibly a brand-new headquarters station, plus a new fire station in an outlying district which will add another engine company.

The fire department in the small community of *Mediapolis* is proud of its new 1,500 gallon tank truck, which features a 200 gpm power take-off pump, a 1,000 gallon folding tank, hose and small tools. So reports Assistant Chief James W. Thompson. The department also has two 500 gpm pumpers, each with a 540 gallon tank, portable pumps, lighting plants, breathing apparatus and other equipment. The new fire station has a 3-bay apparatus floor, kitchen and other facilities.

Iowa State Fire Marshal Ed. J. Herron mentions that NFPA standards serve as the basis for many of his state's regulations. Regulations for Iowa school and college fire safety published last February used the NFPA Building Exits Code as the criteria of fire safety. Regulations on Flammable Liquids and Liquefied Petroleum Gas, also distributed early this year, conform to NFPA standards on this subject. Also issued by the Fire Marshal's Office was an Arson Investigation Manual which was given to fire officials, police and sheriffs' offices to assist them in preliminary fire and arson investigations. The Fire Marshal's Division gives a great deal of attention to fire prevention education. A deputy marshal visits as many schools as possible with a mechanical "Sparky" the Fire Dog used at school assemblies. Each year more than 100,000 grade school children see and hear "Sparky." Preliminary work has been started on a Fire Prevention Handbook for elementary school children which will supplement one for junior and senior high schoolers.

The Cedar Rapids Fire Department recently added these three Peter Pirsch 1,000 gpm pumpers.

Jesse G. Hunter, chief of the fire department in *Cedar Rapids*, reports that his department has been trying to keep pace with the growth of the community. Just four years ago two new stations were opened to give protection to new areas. This past May two more new stations were opened. The fire department opened a training building in 1958 which has given a boost to its own training program as well as to the training of industrial fire brigades. A two-day Industrial Fire School is held each year. The Fire Prevention Bureau works closely with the city Building Department as new buildings are being constructed. In addition, all fire companies carry out in-service inspection covering public buildings, schools, hospitals, churches, industry and business places as well as private dwellings. The department has an intensive fire prevention education program for the schools as well as a baby sitter training course.

Fire Station No. 8, Cedar Rapids, Iowa, completed in May 1961, houses a 1,000 gpm pumper and a 75-foot aerial ladder pumper.

Fire fighters in Cedar Rapids, Iowa, receive training under actual fire conditions in this "all-purpose" building.

Mack 1,000 gpm pumper placed in service by St. Louis, Missouri, Fire Department.

New tilt cab Ford pumper received by Carrollton, Missouri, Fire Department.

Apparatus of the Carrollton, Missouri, Fire Department.

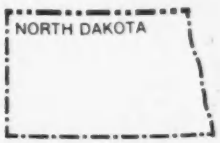
Seventy miles east of Kansas City is *Carrollton*, a community with 5,000 population. Fire Chief Joseph A. Jackson heads the volunteer fire company of 18 men, which includes an assistant chief, two captains and three full-time drivers. The fire company serves 315 subscribers in a rural fire protection plan. A new 500 gpm pumper on a 1961 Ford chassis was just purchased. This has a Barton-American front mount pump, a 500 gallon tank, hose, booster lines and other equipment. Also used for rural service is a 1950 Ford with a front mount 500 gpm pump and a 500 gallon tank and a 1951 Ford truck with a 1,000 gallon collapsible tank and a 250 gpm midship pump.

For the municipality there is a 1955 750 gpm Seagrave pumper with a 500 gallon tank, and a 1952 Chevrolet pickup truck used as a utility emergency vehicle. All apparatus is radio-equipped and the fire company uses a Plectron tone alerting system with home receivers for all firemen. Scheduled for the future is the expansion of fire station facilities to house three more trucks, a new hose tower and a training tower and increase of manpower. Chief Jackson, in April, was elected president of the Fire Fighters Association of Missouri, and Carrollton will be host to the Association's convention in April, 1962.

From Chief James J. Mullen, in *St. Louis*, comes a picture of a new 1,000 gpm Mack pumper recently placed in service. Now only two 750 gpm pumpers are used by the fire department, all others being of 1,000 gpm capacity or greater. Also relatively new for the fire department is a retirement program which became effective January 1, last year. The retirement of Battalion Chief Harold Lentz, who as assistant fire marshal completed 44 years of service, brought to 94 the number of members of the department who have accepted the new pension plan since it became effective.

W. Bush Walden, in Charge of Firemanship Training, states that the 25th Annual State Fire Conference was held at the University of Missouri, July 21–23. Other fire training conferences will be held in August, September and October. The Firemanship Training Division reports an increase in the number of rural fire departments and also a trend toward more mutual aid agreements between rural and city fire departments. Scheduled for the near future is construction of a fire station on the grounds of the university which will help to serve the state training program. Two 16 mm. colored films "*Our Obligation*" and "*That They May Live*" have proved to be excellent for instruction of fire departments and the general public.

State Forester Osal B. Capps, in *Jefferson City*, reports that the Forestry Division of the Missouri Conservation Commission now protects some 8.7 million acres of privately owned timberland. The U. S. Forest Service takes care of another two million acres, but there are still more than three million acres that have no organized protection. Requests have been made to the Missouri Legislature for additional funds to develop protection for these areas.



From *Fargo*, Fire Chief Fred Saefke reports completion of a new $275,000 central fire station. The two-story, 85-foot square structure houses two pumpers, an aerial ladder and a water tower in the apparatus room and has an alarm office, administrative offices, and dormitories on the second floor. In 1960, Fargo voters approved a $300,000 bond issue and a continuing 2-mill levy for buildings and equipment which is expected to provide $75,000 or more for the fire department each year.

Scheduled for the future: next year, acquisition of property for a West Side station and drill tower; in 1963, construction of this building at an estimated cost of $154,000; in 1964, purchase of a 1,000 gpm pumper and a 75-foot aerial ladder truck; and, in the following year, purchase of a 1,250 gpm pumper and the building of a maintenance shop in the new station. The mill levy funds are earmarked for long-range needs beyond the five-year "immediate needs" plan now in operation.

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"Sparky" arrives in Pilot, North Carolina, to participate in local fire safety campaign.

Home Fires Cut by Youth Program

HOME fires have diminished more than 50 per cent in Pilot, N. C., since a Sparky's Fire Department unit was organized, reports Chief Alford Miller of the Pilot Volunteer Fire Department.

"Grass fires have been cut, too," he says, "and there is no telling how much property and how many lives have been saved through our Sparky program."

Pilot, a small community on U.S. Highway 29 outside of Thomasville, N.C., started a unit of Sparky's Fire Department two years ago and has had an average enrollment of 50 ever since. Both boys and girls ranging in age from 4 to 13 have attended the out-of-school sessions.

"It is amazing how well the younger ones can remember what they are told about fire prevention," Chief Miller says.

"Parents call up the fire station asking what in the world we have been teaching their children. The children have been telling them to clean out attics and closets, and put gasoline in metal cans.

"The children wake them up when they fall asleep with cigarettes in their hands; pull the electric iron cord out of the wall when mother leaves the room.

"Our Sparkys would put adults to shame when asked how they would get out of a house that was on fire," Chief Miller states.

And he concludes, "The cost of the Sparky program the first year was $50.00; the second year has been less than $25.00. This is a mighty small amount when compared with the good it has done."

There was a young fellow named Sydney,
Who drank 'til he ruined his kidney.
It shriveled and shrank,
As he sat there and drank,
But he'd a good time doing it, didney!

— ANON

Fire Department Operations in Protected Properties

PREPARED by the NFPA Committee on Standpipes and Outside Protection with the assistance of Committees on Automatic Sprinklers, Fire Department Equipment and Fire Service Training, this new illustrated booklet recommends procedures for fire departments to follow when handling fires in sprinklered property.

The 5½- by 8½-inch, 32-page paperbound booklet includes three principal sections: Automatic Sprinkler Systems, Outside Sprinklers for Protection Against Exposure Fires, and Properties Protected by Standpipe Systems. Each section includes general information as well as suggestions for inspections and pre-fire planning, using water supply on the fire ground, supplying the sprinkler or standpipe systems, and post-fire operations. It is priced at $1 per copy with discounts allowed for quantity purchases.

Forest Fire Loss

FIRE losses in forests during 1960 were among the worst in the history of the U. S. Forest Service. National forests had 12,817 fires — the greatest number since 1940, burning 421,000 acres, largest acreage burned since 1942.

In only four other years (1936, 1938, 1939 and 1940) have more fires occurred in the national forests. Previous 5-year average for number of fires was 9,715 and area burned (5-year average) was 235,388 acres.

Eighteen persons died fighting fires in the national forests last year. Nine were airplane pilots on fire fighting missions (eight on private contract basis and one a regular Forest Service pilot). Other deaths came from a helicopter crash, an observation flight, falling trees (two killed), a rolling rock, a vehicle accident and carbon monoxide poisoning in a motor vehicle.

Last year also brought a new record of flying time for forest fire fighting. Altogether 48,069 hours were registered. This was 47 per cent more than 1959; and nearly three times the 1956 record. Flying time of fixed wing aircraft last year was approximately four times that of helicopter use.

Another record was in the dropping of fire retardants by aircraft. Almost 6,000,000 gallons were cascaded to 1,050 fires in 1960. This was almost double the previous year's total and about 50 times the amount of retardant used in 1956 when this method of fire attack was first initiated.

"That darn Cassidy always takes the strainer off on Fridays."

Trouble with Concrete Dividers?

A READER expresses concern about the concrete dividing strips used on many municipal thoroughfares. Mentioning preference for the painted double line, he states that "when a vehicle strikes this concrete barrier it . . . goes out of control which is more dangerous than going over a double line. . . . The concrete strip makes it almost impossible for the fire service to approach a business or residence from the opposite lane."

He has asked for comments from other fire departments who may have experienced problems with the raised concrete type of street divider. Send reply to NFPA FIREMEN magazine, Box 71, 60 Batterymarch St., Boston, Massachusetts.

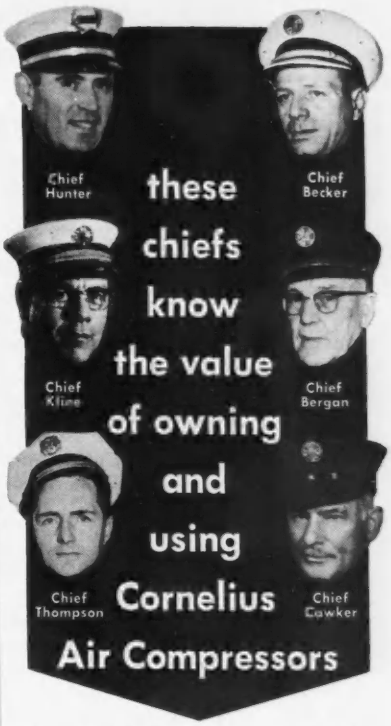
1830 Book Sought

JAMES BRAIDWOOD was one of the first really noted professional fire officers. He became chief of the Edinburgh, Scotland, Fire Department in 1823 and was brought to England to head the London Fire Engine Establishment when it was organized in 1832. He was killed in the famous Tooley Street Fire in London just 100 years ago on June 22, 1861.

Possibly the first book on fire department practice ever written was written in 1830 by Chief Braidwood. It was entitled "On the Construction of Fire Engines and Apparatus, the Training of Firemen, and the Method of Proceeding in Cases of Fire."

Does any NFPA member own a copy of this book which he would be willing to lend or donate to the NFPA library?

The library has just received the gift of a book of Braidwood's papers, "Fire Prevention and Fire Extinction" (London: 1866). For this we thank the British Fire Protection Association and its Director, N. C. Strother Smith.



Fire Chiefs everywhere have high praise for reliable, economical Cornelius high pressure air compressors. Here is what just a few of them say about this equipment.

CHIEF BECKER, Monrovia, Calif. said, "The Cornelius high pressure air compressor is one of the most valuable pieces of up-to-date equipment we have purchased."

CHIEF BERGAN, Auburn, N.Y. said, "I would recommend Cornelius air compressors to all departments using demand type air masks."

CHIEF CAWKER, Topeka, Kansas said, "The Cornelius air compressor is a valuable asset to any fire department."

CHIEF HUNTER, Cedar Rapids, Iowa said, "Our Cornelius compressor satisfies all our needs for compressed air both for actual firefighting duty and for training purposes."

CHIEF KLINE, Sylvania, Ohio said, "Our Cornelius compressors have proven very valuable; in convenience, economy and especially the safety of our firemen."

CHIEF THOMPSON, Rural Fire Dept., Rochester, Minn. said, "We know through our own experience that the cost of owning a Cornelius compressor is small compared to the safety it provides our men."

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THE FIRE CHIEF'S LAMENT

"Oh, where are my wandering boys tonight?"

IF THE bell hits or the siren or whistle blows, is your department ready? "Silly question," you may think. "We have good apparatus in perfect condition ready to go at the touch of the starter switch."

But the question is not foolish. At this moment there are thousands of fire chiefs who do not know whether or not they will have a crew to man the apparatus effectively when the next alarm strikes — and it may be for the biggest fire in the town's history.

In fact, the situation is so bad that many fire chiefs are afraid to face up to the issue. They have not the slightest idea as to what men are available, where they are, whether they will show up promptly or not at all, at the next fire.

The chief with permanent fire fighters on duty at least knows how many men are working on a particular day or night, but in the majority of cases, the chief of a part-paid, paid on call, or volunteer department does not know whether he will even have drivers to take out apparatus that is assigned to respond.

Oh, yes, there is a good turnout when an alarm comes in on regular meeting night or during the annual banquet. But at any other time you may get five men, you may get twenty-five men, or you may get NONE, promptly. There have been too many cases where no fire department members were readily available to answer a call.

All of this is a relatively new problem for the fire service. Years ago the average fireman spent more time in his own town and at the fire station. He took pride in "keeping in touch" with the fire alarm. He was also proud of his attendance record at fires. Getting one's name on the fire attendance record was important. Being one of the first men at the fire house to take out the apparatus and being one of the first members to arrive at a fire was a matter of intense rivalry. It still is with well-run, public-spirited volunteer departments.

However, many fire departments no longer have a prompt and efficient response. If these fire chiefs and fire departments do not take more seriously this responsibility which they have assumed to protect life and property, the municipal officials may be forced by public opinion to find some other organization that will be more dependable in furnishing public fire protection. The problem of poor attendance at fires is one that cannot be ignored much longer if the fire service wants to hold public respect and confidence.

Fortunately, the attendance problem is one that is not too difficult to solve if the fire chief is willing to face the issue squarely.

The first requirement should be that the fire department establish and maintain an accurate roster of the membership of the department. Merely voting a person into membership is not enough. The fact that the de-

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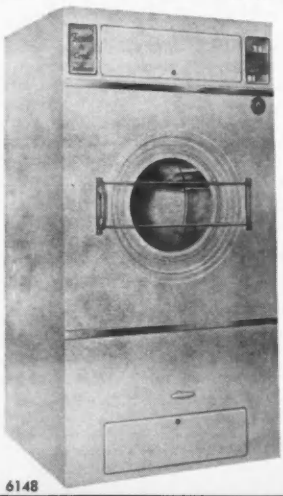

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These certifications and/or listings are for fuel burning as well as electrical authorization. U. L. (natural and manufactured gas), CGA (natural and LP gas), CSA (natural and LP gas.)

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partmental secretary has a mailing list of members is not enough. Many departments have members who do not even live in town. There must be an official roster of men available for fire duty maintained at fire department headquarters. Where there are several fire companies a separate roster should also be maintained for each company.

The departmental roster should include the name, address, and age of each member and his regular occupation. This will indicate who he is, where he is, whether he is young or old, and give some indication of individual abilities and skills. It may also provide some indication of each member's availability.

It is important that the roster include the date of appointment of each member of the department. Some of the most important aspects of efficient fire department operations are of necessity based upon seniority. Rank or title is also important, but where there are members of equal rank, the senior man in grade is considered to be the more experienced and is automatically in charge and responsible for taking whatever action is necessary for carrying out the department's work. Many outstanding departments publish their rosters in order of seniority rather than by rank.

Nevertheless, the roster should show each member's current status and rank or title in the department, whether that be chief, captain, lieutenant or fireman. The fact that a man was chief five years ago and has a courtesy title of "Chief" does not mean that he should be on the active roster as chief if he happens to be serving in some other capacity. His individual file should contain information of the various positions that he has held or is holding in the department.

The departmental roster should be arranged so that all of the active fire fighters are listed together. Members who are not generally available for fire duty or who do not regularly respond should be listed separately. A roster should be arranged to show various classes of membership as:

Active members (qualified men available for fire duty).

Probationary members (men accepted by the company and being trained for fire duty).

Reserve members (men who have had training and fire experience who can be called upon in an emergency but who do not ordinarily respond).

Honorary members (men whom the department wishes to honor such as former chiefs and others who may no longer be active fire fighters).

Social members (men who give financial support and enjoy the privileges of membership without doing fire duty).

Once an up-to-date, meaningful roster has been prepared, the chief will be able to see who is available to man the apparatus. This may come as a shock. He may not have realized that so many of the old-timers that he formerly could count on are no longer available or dependable. It may be that he will have to take steps to get some "new blood."

An impressive list of names does not put out fires. In most cases an active roster of about 50 officers and men is needed to man a volunteer fire company operating three first-line pieces of apparatus. If there is a first-aid or emergency squad, additional men will be needed to assure adequate manpower for the apparatus. Where some of the members work out of town or are otherwise unavailable for certain periods of the day, it may be necessary to have a larger active roster.

Another New Champion to Imperial County Fire District* — Their Sixth DARLEY

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Out with the Smoke In with the Crew

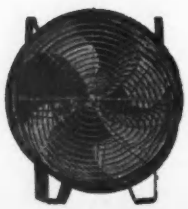
Case Study J–652*

And down goes the damage with a Super Vac Smoke Ejector

The weather was freezing cold* the afternoon of January 24th when a Pennsylvania fire squad answered the call of a sporting goods store fire. The stockroom had been ablaze three hours before discovery. Attack was made initially from front and rear of store *but was impossible even with masks,* so dense was the smoke. A Super Vac Smoke Ejector, in use with the B . . . Fire Company only one month, was put into immediate operation. Alarms were sent in for additional Smoke Ejectors. The super vacuum effect of the propeller blades sucked out the smoke, permitting the fire squad to *see and fight the fire.*

Chief John H. . . said later: "Without the use of Smoke Ejectors, this fire would have taken longer to control."

**Write for your copy of the complete report of this actual fire from the Super Vac files. Ask for all-new literature on new models, new housing, improved blade performance.*



BOTH ROUND AND SQUARE HOUSING NOW AVAILABLE

All Smoke Ejectors are now shipped with the "Plus 21" 4-bladed propeller, redesigned to increase air volume by 21%. Specify either round housing, or the new square housing (no increase in housing price). Super Vac accessories include: running board mounts, hangers, flexible duct and adapter rings. See your Super Vac dealer or write to factory.

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FIRE SERVICE MEETINGS

AUGUST

California:

AUGUST 18: Marin County Association of Fire Departments, monthly meeting, Tiburon. Contact W. H. Lane, secretary, 74 Vendola Drive, San Rafael.

Canada:

AUGUST 20–24: 1961 convention, Canadian Association of Fire Chiefs, Kitchener, Ontario. Host Chief Kenneth Putnam.

AUGUST 22–25: Annual Fire College, British Columbia Fire Chiefs' Association, Penticton, B. C. Host Chief W. Mattocks.

Connecticut:

AUGUST 18–20: Connecticut State Firemen's Association, annual convention, Bethel. Contact John Moehring, secretary, 56 Toms Road, Stamford.

Louisiana:

AUGUST 16–19: Louisiana State Firemen's Association, annual conference, Opelousas. Contact Irby A. Gascon, secretary, 808 R. R. Avenue, Plaquemine.

Missouri:

AUGUST 25: West Central Missouri Firemen's Association, Inc., regular meeting, Carrollton. Contact Harvey Dunn, president, Harrisonville.

New Jersey:

AUGUST 17: Gloucester County Firemen's Association, monthly meeting, Union-Westville. Contact W. H. Mattson, secretary, 29 Home Avenue, Gibbstown.

New York:

AUGUST 21: Chenango County Firemen's Association, Inc., regular meeting, Smyrna. Contact C. J. Gardner, Jr., Mount Upton.

AUGUST 21–23: Firemen's Association of the State of New York, 89th annual convention, Powers Hotel, Rochester. Write Eugene M. Braun, 4025 Main Street, Buffalo 26.

Ohio:

AUGUST 23: Central Western Firemen's Association, Inc., regular meeting, Brookville. Contact Jerry Wagner, secretary, 1007 N. Barron Street, Eaton.

AUGUST 31: Stark County Firemen's Association, Inc., regular meeting, Washington Township. Contact Gene Kay, secretary, 2036 29th Street, N. E., Canton 5.

Oregon:

AUGUST 16: Central Willamette Fire Fighters' Association, regular meeting. Contact E. J. Bell, secretary, Stayton.

AUGUST 16: Washington and Columbia County Firemen's Association, regular meeting, Cedar Mill. Contact Captain Joe J. Kust, secretary, 12930 N. W. Cornell Road, Portland 10.

AUGUST 21: Clackamas County Firemen's Association, regular meeting. Contact Walter Wickline, secretary, 2137 S. E. 5th Avenue, West Linn.

AUGUST 25: Polk-Yamhill Firemen's Association, regular meeting, McMinnville. Contact Glenn Wick, secretary, 209 Hayter Street, Dallas.

Pennsylvania:

AUGUST 19: Firemen's Association of York County, annual meeting, Hanover Fire Department. Contact Lewis E. Hankle, secretary, 234 W. Chestnut Street, Hanover.

AUGUST 24–26: Cumberland Valley Vol-

unteer Firemen's Association, 60th annual convention, George Washington Hotel, Winchester, Virginia. Contact John A. Boyd, 366 National Avenue, Winchester.

SEPTEMBER

California:

SEPTEMBER 13: Southern California Conference of Fire Prevention Inspectors, regular meeting, Santa Ana. Contact Captain Ira A. Anderson, Southern California Conference of Fire Prevention Inspectors, Rialto.

SEPTEMBER 15: Marin County Association of Fire Departments, regular meeting, San Anselmo. Contact W. H. Lane, secretary, 74 Vendola Drive, San Rafael.

Delaware:

SEPTEMBER 13: Kent County Volunteer Firemen's Association, regular meeting, Bowers. Contact Paul B. Smith, Marydel.

SEPTEMBER 14: Delaware State Fire Chiefs' Association, annual meeting, Dover, 8:00 P.M. Contact Howell H. Barnes, Smyrna.

SEPTEMBER 14: New Castle County Volunteer Firemen's Association, regular meeting, Claymont Fire Company. Contact Ed Hawthorne, secretary, Box 175, St. Georges.

SEPTEMBER 15, 16: Delaware Volunteer Firemen's Association, 41st Annual Convention, Dover. Contact Jack T. Roe, Jr., convention chairman, Dover Fire Department.

Florida:

SEPTEMBER 14: Lake County Firemen's Association, regular meeting. Contact John Jackson, secretary, Umatilla.

Minnesota:

SEPTEMBER 10, 11: Minnesota State Fire Chiefs' Association, Fall convention, Anoka, Chief Robert Beckenbach, host. Contact Robert T. Palmer, Chief, Fire Prevention Bureau, Minneapolis Fire Department.

New York:

SEPTEMBER 5–8: New York State Fire Fighters' Association, 23rd Annual Convention, Concord Hotel, Kiamesha Lake. Contact Robert R. Cohn, secretary, 125 West Market Street, Long Beach.

SEPTEMBER 8: Broome County Firemen's Association, Inc., regular meeting, West Windsor. Contact Glenn Fuller, secretary, Box 79, Port Crane.

SEPTEMBER 8, 9: Jefferson County Volunteer Firemen's Association, 21st Annual Convention and Tournament, Sackets Harbor. Contact Chief Floyd F. Burnup, chairman, Sackets Harbor.

SEPTEMBER 8, 9: Rockland County Volunteer Firemen's Association, Inc., annual convention, New City Fire Engine Co. No. 1. Contact Merle Blauvelt, secretary, 140 Fifth Avenue, Nyack 8.

SEPTEMBER 10: Mid-Hudson Harlem Valley Fire Chiefs' Association, Inc., regular meeting, Slater Chemical Fire Co., Glenham. Contact Dick Kennedy, Box 18, Glenham.

SEPTEMBER 13: Tompkins County Firemen's Association, regular meeting, Trumansburg Fire Station. Contact R. J. Albertson, secretary, Brooktondale.

SEPTEMBER 13: Steuben County Firemen's Association, Inc., regular meeting, Coopers Plains. Contact T. L. Burbidge, secretary, R. No. 1, Hornell.

Rhode Island:

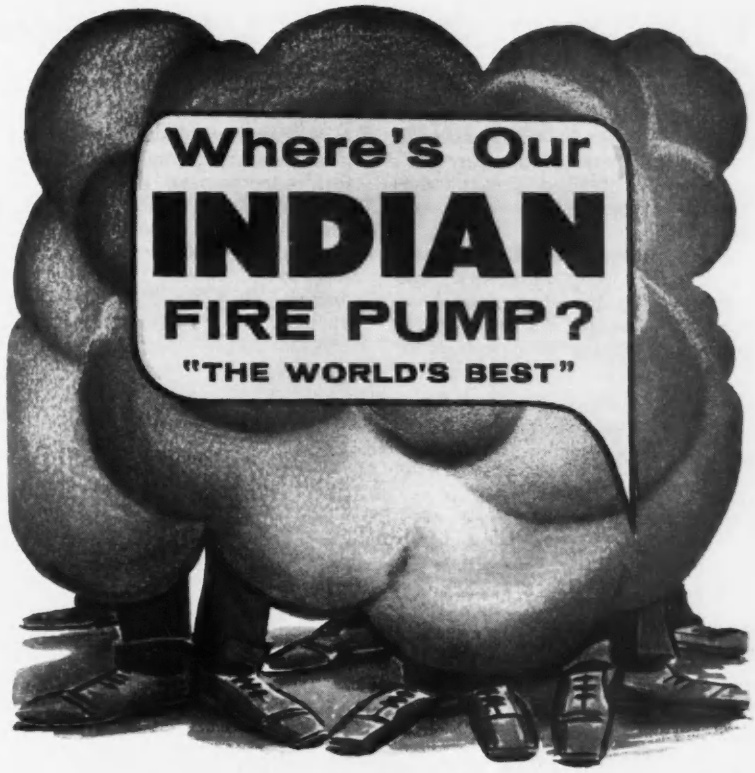
SEPTEMBER 12: South County Fire Chiefs' & Wardens' Association, executive meeting, East Greenwich Fire Department. Contact H. F. Briggs, Jr., secretary, Saunderstown.

Texas:

SEPTEMBER 6: Dallas County Fire Chiefs' Association, regular meeting, Richardson. Contact Chief J. C. Swadley, Jr., 321 W. Main Street, Grand Prairie.

West Virginia:

SEPTEMBER 14–16: West Virginia State Firemen's Association, Inc., 33rd Annual Convention, Weston. Contact French A. Smith, secretary, Weston Fire Department.



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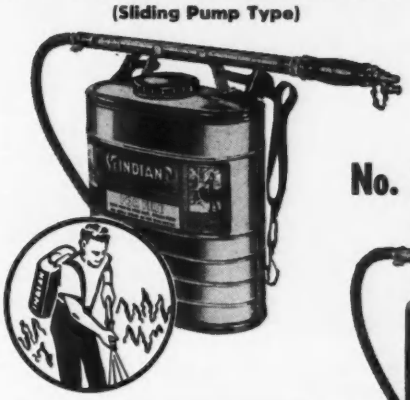
(Sliding Pump Type)



Where there's smoke there's fire — and where there's fire there should be plenty of INDIANS! Why not check your needs today? Be prepared! INDIAN FIRE PUMPS have no equal. 3 models to choose from.

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Send for circular on our new **No. 90 FIBERGLASS tank model.** Light weight. Will not rust or corrode. Brass pump.
(Shown at right.)

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Safety Goggles in Los Angeles

FOR about four years the Los Angeles, California, Fire Department has been experimenting with the use of safety goggles for fire fighters. A report on this experimentation program was contained in a recent issue of the *Firemen's Grapevine*, published by the Los Angeles Firemen's Relief Association, Inc.

Back in 1957 five different types of goggles were purchased and placed in service at various locations for personnel on engine, truck and squad companies as well as for the Mountain Patrol. Early in 1958 the fire department Safety Committee began testing safety goggles for heat resistance, condensation, comfort, effectiveness, ventilation and marking. After an extensive study, the safety committee recommended the American Optical 710 Splash Goggles. About mid-1958, 500 pairs of these were purchased and distributed to the department.

Experience during fires and other emergencies proved extremely favorable, so much so that in the following year 1,000 more pairs of A.O. 710 Safety Goggles were distributed throughout the department.

According to the article, it was the intention of the fire department administration to have every fireman equipped with safety goggles by the end of the 1960–61 fiscal year, with an additional store of goggles in reserve. Typical experience reported during the test period: During one brush fire in three days of operation, only one man who was wearing goggles went to the hospital with an eye injury. However, 33 per cent of the men not wearing goggles required hospital treatment for eye injuries. Later, in a series of brush fires, it was found that only two men out of 450 required treatment for eye injuries, and these men had not been wearing safety goggles.

NEW E&J MERCURY MARK I

- RESUSCITATOR
- INHALATOR
- ASPIRATOR

E&J's new Mercury Mark I is designed, built and arranged for fast, sure action.

Its compact resuscitator, when necessary, can be snatched from the case, intact and ready to go anywhere with the operator. The aspirator, liter flow mask assembly, and other accessories can be put into service in seconds.

The exclusive Liter Flow Mask Assembly permits constant metered flow of oxygen to the patient who is still breathing but needs oxygen. This new feature is especially helpful for cardiac patients, asthmatics, etc., needing high concentrations of oxygen but not resuscitation.

The Mercury Mark I weighs only 28 pounds with a full "D" cylinder. Easily handled, it measures 7½" x 13" x 24". Ask your E & J dealer for a demonstration soon, or write for Bulletin No. 2490C, Dept. F-8.

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Effective Streams for Fighting Fires

THIS new book was written to help fire departments develop the best hose streams for effective operation on the fire ground. Warren Y. Kimball, Manager, NFPA Fire Service Department, and Managing Editor, NFPA FIREMEN magazine, developed the text, which includes new suggestions for simplifying hydraulic calculations for the fire ground. The 88-page, 5½- by 8½-inch paperbound book has 35 tables plus 56 diagrams of hose layouts which will give many fire departments opportunity to practice special evolutions with single and multiple lines, to supply nozzles on hand lines as well as ladder pipes and heavy stream equipment.

Chapters include: suggestions on fire hose streams; movement of water through hose and nozzles; nozzle and pump pressures; supplying heavy streams; using large capacity fog nozzles; relay problems and miscellaneous tables.

Priced at $2 per copy with discounts for quantity purchases, the book is available from the NFPA Publications Department.

Question: What is the purpose of a kink test for fire hose and what pressures must hose withstand under this test?

Answer: See Paragraph A-54 of NFPA Standard 196, Standard for Fire Hose, 1960 edition.

Now! Ice-Pak any injury in just 2 seconds!

Remarkable new discovery! ***NEW KWIK-KOLD INSTANT ICE-PAK. Gives instant cold that lasts up to ½ hour! For sprains, swelling, bruises and minor bleeding. Helps minimize injury, speed recovery.***

Doctors know that prompt application of cold is one of the most important first aid treatments for injury. And *how fast* cold is applied can often make the difference between days, and even weeks, of recuperation.

Now a new scientific discovery called KWIK-KOLD makes it possible for anyone—anywhere—to get the medical benefits of cold in a hurry!

New KWIK-KOLD Instant Ice-Pak gives you *instant cold* for any injury. Relieves pain on the spot—reduces swelling and minor bleeding. Much faster and handier to use than old-fashioned ice bags and, unlike ice, is always available, is not messy, is easy to carry on trips.

Quick and easy to apply. Just squeeze the plastic bag and—in just 2 seconds—you get instant cold that *stays cold* up to half an hour! The tough yet flexible plastic bag conforms readily to body contours. Non-toxic and safe, even if the bag is punctured. Keeps for extended periods of time.

Kwik-Kold provides ready relief for athletic injuries. Used by the 1960 U.S. Olympic Team, Kwik-Kold should be standard equipment for all football, basketball, and baseball teams as well as other athletic groups. For all sports injuries—sprains, black eyes, cuts and bruises—Kwik-Kold is handy and effective, indoors, outdoors, in all seasons.

New KWIK-KOLD belongs in the first aid kit of everyone who has to deal with sudden injuries. Get Kwik-Kold from your local first aid equipment supplier or write International Latex Corporation, 350 Fifth Avenue, New York 1, N. Y.

Kwik-Kold can be stored at any temperature, always ready for immediate use. Tough yet flexible plastic bag contains dry Cold-Crystals and an inner pouch of special fluid. When you squeeze bag, fluid is released to activate crystals and give *instant cold*. Apply as you would an ice pack. Bag measures 6" x 9", conforms smoothly to body contours, is not lumpy, messy, or drippy. Dispose of bag after use.

How Cold Works in the Treatment of Injuries:

Cold is medically recognized for its value in the treatment of various injuries. In *minor bleeding,* cold has an astringent action on tissues and constricts capillaries, thus acts to reduce blood flow at the site of the wound. By reducing effusion of blood to wound, cold helps reduce *swelling, inflammation, and discoloration* in bruises and sprains. The local anesthetic effect of cold helps *relieve pain.* And because it restricts blood flow to and from the wound, cold slows spread of venom in treating *insect and snake bites.*

How To Use Cold in Emergency First Aid:

Sprains. Elevate injured part to a comfortable position. *Apply cold packs* to sprain to ease swelling and relieve pain.

Bruises, Black Eyes. Apply cold pack promptly to bruise for 20 to 25 minutes. Cold inhibits flow of blood to wound, helps limit discoloration, reduce swelling and pain.

Bleeding. In bleeding from the nose, the head should be kept erect, as lowering the head tends to encourage continued flow of blood. *Apply cold* to the nose, and if the bleeding is from near the tip of nose, pinch the nostrils together for a few minutes. In bleeding from cuts and abrasions, keep the area raised and *apply cold* in conjunction with other prescribed treatment.

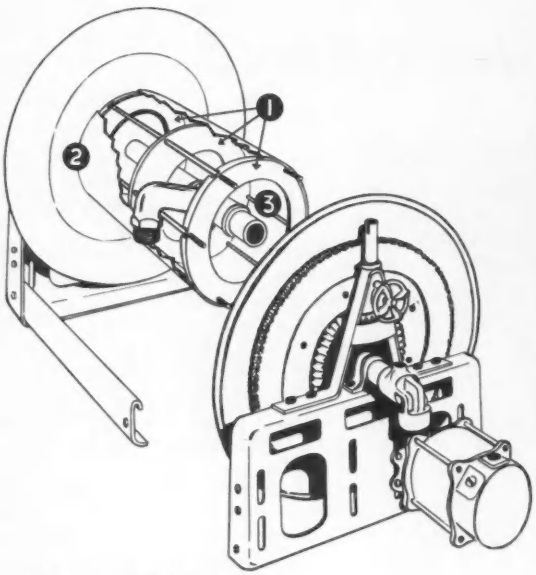
Insect & Snake Bite: *For bee, wasp and hornet stings,* remove stinger with sterilized needle or knife point. *Apply cold* to sting to relieve pain and slow absorption of venom. Apply calamine lotion to relieve itching. *For ant, chigger and mosquito bites,* wash affected parts with soap and water, then apply paste of baking soda. *Apply cold* to reduce swelling. *For snake bite,* follow prescribed first aid procedure, *using cold* application on wound to relieve pain and help limit spread of venom.

Sunstroke. For mild sunstroke (marked by headache, fatigue, dizziness and, perhaps, fainting), cool patient off quickly. *Apply cold packs* to head to help lower body temperature.

Minor Burns. Follow recommended first aid procedures to exclude air from burned area and prevent contamination. *Apply cold packs* to relieve pain.

Other Uses. Cold packs may be considered for use in conjunction with other appropriate first aid measures in treating minor head injuries, suspected appendicitis, headache and fever, toothache, and fainting.

Did You Know?



Hannay reels give you built-in protection against pressure surges.

You're out of action at the fire when extreme pressure surges crush drums, spring discs or jam gears on the hose reel. To give you built-in protection against reel failure, Hannay engineers make pressure performance tests in the laboratory and in actual fire fighting service. You get these design and construction features only with reels designed and built by active fire fighters . . . reels by Hannay.

1. **Cast Tenzalloy reinforcing discs.**
2. **Welded heavy steel drum.**
3. **Tie rods with pipe sleeve spacers.**

NEW guide to hose reel selection and data sheet on reels for CRL hose now available. Send for your copy today.

REELS BY HANNAY®

CLIFFORD B. HANNAY & SON, INC.
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Bow and Arrow Life Gun

R. J. "BOB" SMITH writes an entertaining column titled *Bobservations* in the Fire Service Bulletin of the University of Maryland. In a recent column, reprinted below, he called attention to a unique life gun used by the Pocomoke City Volunteer Fire Company, headed by Chief Fred Henderson.

For some time we have been of the opinion that in many cases where a volunteer fire department is called to the scene of an emergency they bring with them a greater variety of experts in various fields than is available at any other time. We are constantly amazed at the ingenuity and the use of these talents that are part of the everyday life of these fire department members.

Chief Fred Henderson and the Pocomoke City Volunteer Fire Company has, for many years, been known in their section of the state as a progressive and well-equipped fire department. To quote one neighboring chief, "If it's made, Pocomoke will have it; if it's not made, Pocomoke will make one."

Since early 1959, the Pocomoke City Volunteer Fire Company has had in use a unique "life-gun." It consists of a 50-pound bow, a specially designed arrow and a commercial line and reel attached to the bow. This unusual life-gun was developed because about 40% of the fire department members were also members of a local archery club. Several types of arrows were made by the group after a trial and error testing session.

Its uses and potential uses are:

A. Life Saving — shooting a line to upper floors of a building, etc.

B. Ventilation — shooting out inaccessible windows.

C. Safety — by shooting line over top of building or chimney it can be used to pull down unstable portions of a building.

D. Time Saving — line shot to upper floor to haul equipment or lines to that elevation.

On three occasions the "life-gun" has been used to advantage in these previously mentioned areas. There are many benefits derived by the community by using the native talents of the members. This point is realized and practiced by Chief Fred Henderson and the Pocomoke City Volunteer Fire Company.

new

M-S-A® ONE-HALF-HOUR CHEMOX®

Try this new lightweight oxygen breathing apparatus on for size. Note the simplified design. Save on low operating costs. Watch the wearer's quick acceptance. Here's why:

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Fully automatic — no manual operation required.

FACEPIECE

Monocular lens CLEARVUE* Facepiece provides unobstructed vision.

HEADBANDS

They're made of strong, long-lasting nylon.

BREATHING TUBE

Just a single short one. But close convolutions greatly extend its length for full head movement.

TIMER

Fully recessed for compactness. Rings continually for 17 seconds.

CANISTER

Round, simplified, inexpensive. Rated at 30 minutes. Materially reduces operating costs.

*Trademark

INSTANT OPERATION

An optional unit is now available for instant operation even at temperatures below zero.

CANISTER HOLDER

Easy acting lever holds canister securely in place—cannot open accidentally.

BREATHING BAG

"Picture-frame" type. Encircles the canister completely, providing full unrestricted flow.

HARNESS

Also strong, long-lasting nylon. Rides comfortably and lightly without hampering.

For a demonstration or technical bulletin on this new respiratory protective equipment, contact your MSA Fire Department distributor or the nearest MSA sales engineer. Write: Mine Safety Appliances Company, Pittsburgh 8, Pennsylvania.

MSA SAFETY EQUIPMENT HEADQUARTERS

MSA backs up its label with selection, quality, research, experience

save life & property with New Model Falcon®

- Simple visual inspection with new sight glass—added neatness of design.

No one can place a price on the possible loss of lives due to fire. But Falcon Automatic Fire Alarms & Systems can give early warning of fire to protect lives and guard property.

Falcon Automatic Fire Alarms and Systems are:

- LISTED BY UL AND ULC for use with 600 ft. of ¼" aluminum tubing
- SELF-CONTAINED (No wires or batteries)
- FULLY GUARANTEED

. . . and they are low in cost!

Dealers Wanted

WRITE for particulars — and free, informative "Sounds for Safety" folder! Dept. FN

Falcon® ALARM CO., INC.
SUMMIT, NEW JERSEY

Most effective FIRE ENTRY with FIRE KING by WHEELER

* "Scotch-Shield"

Sturdy, 3-ply, fire entry suit. Famous Tropic-Weave underwriter's grade aluminized* asbestos as outer layer. 100% wool middle layer. Neoprene coated fiberglas inner layer is vapor and liquid barrier against acids, live steam, etc. Hard hat built into helmet . . . pyrex vision piece . . . federally approved one-piece zipper . . . ample room for *air* pack inside. The standard for industrial and municipal departments. Ask your distributor or write.

POWER MEGAPHONES

Issue effective commands in fire-fighting. Powerful, light, transistorized units. 3 rugged styles . . . pin-point or flare sound patterns.

Send for FIRE FLYER

Complete details on Fire King, Megaphones, Proximity Suits and many other items. Get your copy today!

WHEELER PROTECTIVE APPAREL, INC.
244 W. Huron St., Chicago 10, Ill.

WHEELER

ELECTRONIC
SPARKY
Talks, Moves Head and Mouth
A Real Show-Stopper!

Delivers your Fire Prevention message by recording and by hidden mike — automatically or by remote control.

•

Dramatically effective training aid for schools, fairs, demonstrations, campaigns and public showings the year around.

Stands 4½ feet high

Bright-colored uniform and clear voice commands attention at every affair.

For prices and NEW CATALOG, *write to:*

ROBERTS CO.
Box 444D Wayland, Mass.

NOW...*Fyrepel offers* you complete heat protection with the *all new*

9148 OVERHOOD

- Aluminized Glass Cloth
- 180° arc of vision
- Fits secure and snug

The 9148 snaps quickly and easily on to the brim of any fire helmet—gives excellent radiant heat protection to face, neck, chest and shoulders. Breathing apparatus can be worn beneath hood. The face piece, frame and drape are all detachable for easy part replacement.

Write for details on Fyrepel's complete line of fire fighting clothing and equipment.

FYREPEL PRODUCTS INC.
NEWARK, O.

Firemen's Training in the Months Ahead

Arkansas: Two-week regional training schools will be conducted in 17 regions through November 30. For details write W. A. Turner, Education Building, State Capitol, Little Rock.

Michigan: The 12th Annual Michigan Fire Inspectors Conference will be held September 12–15 at Michigan State University Kellogg Center, East Lansing. For further information write Fire Inspector John Bunk, Michigan Fire Inspectors Society, 33110 Five Mile Road, Livonia.

Minnesota: The Annual Lake Region Firemen's Association Fire School will be held September 10 at Melrose. For details write Father William J. Wey, President, Lake Region Firemen's Association, Tintah, or Jim Leicher, Fire School Co-ordinator, Luverne.

Missouri: The Eighth Annual Conference of the Jackson County Firefighters' Association will be held August 26–27. For details write George I. Smith, President, Jackson County Firefighters' Association, Raytown Fire Protection District, 9705 E. 63rd Street, Raytown 33.

New Hampshire: The New Hampshire State Fire School will be held August 26, 27 at the Training Center of the Meadowood County Area Fire Department, Fitzwilliam. Contact Chief Donald Holbrook, Meadowood County Area Fire Department.

New Jersey: The New Jersey State Fire College's training course for fire fighters will be held September 8–10 and September 22–24 at the National Guard Training Center, Sea Girt, and an officers' training course will be conducted November 17–19 at Seaside Heights. For details, write the New Jersey State Safety Council, 24 Branford Place, Newark 2.

Oklahoma: The Seventh Annual Southwestern Arson Investigation Institute will be held at the Extension Study Center, North Campus, in Norman, October 17–21. For details write James Robinson, Coordinator and Legal Consultant, Southwest Center for Law Enforcement Education, The University of Oklahoma, Norman.

Pennsylvania: A three-day course for potential fire service instructors will be held August 21–23 at Pennsylvania State Fire School. Resident 5-day classes will be conducted in cycles through November 17. For details write Art Espey, Director, Pennsylvania Fire School, Box 631, Lewistown.

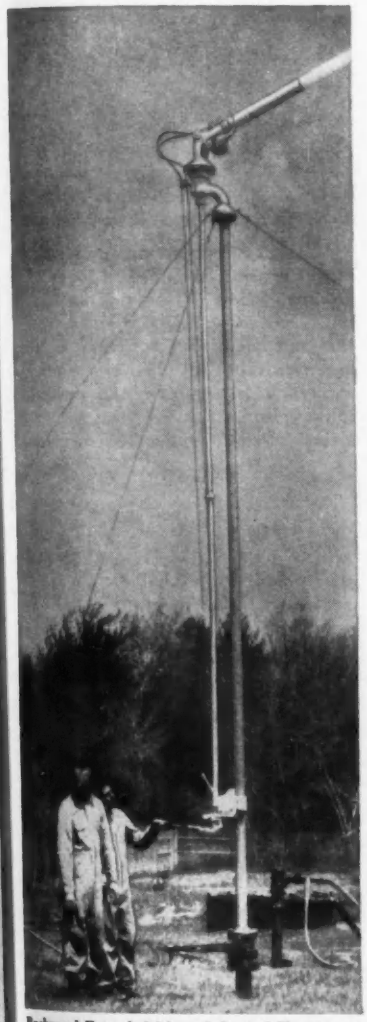
South Carolina: Itinerant training classes will be held each week August through December. For details, write H. B. Wells, Instructor, Shady Springs, Rt. 1, Prosperity.

Tennessee: The 18th annual Tennessee State Fire Service School will be held August 21–25 at the Fire Training Center, Middle Tennessee State College, Murfreesboro. For details write Homer S. Elkins, Director of State Fire Service School, Trade and Industrial Education, 115 Cordell Hull Building, Nashville 3.

Wisconsin: The 25th Annual Fall Fire School will be held September 10 at the Green County Fair Grounds, Monroe.

Fight fires from any angle...
WITH ROCKWOOD SPECIALTY TURRET NOZZLES

Getting The Upper Hand...



Rockwood Extended Manual Control Turrets can be located 10 to 20 feet above a remote control station on the ground. Greater discharge range increases their fire fighting coverage. Higher extensions are engineered for special applications.

On the ground, on trucks, or towering over the flames, Rockwood Turret Nozzles are valuable fire fighting aids for use in refineries and chemical plants.

In fact, Rockwood makes the most complete line of specialty turret nozzles on the market. Every type is designed to fight fire four ways: with solid FOAM stream, FogFOAM, WaterFOG or solid water stream. And all are easily adjustable to meet changing fire conditions.

Throughout the country these Rockwood advancements are proving they can hit fires harder and faster. Find out how well they can protect your own plant. For an illustrated booklet on this complete line, write to Rockwood Sprinkler Company, Portable Fire Protection Department, 422 Harlow St., Worcester 5, Mass.

BLISS ROCKWOOD

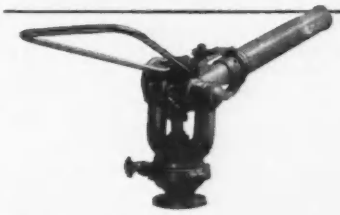
ROCKWOOD SPRINKLER COMPANY

A Division of The Gamewell Company
A Subsidiary of E. W. Bliss Company

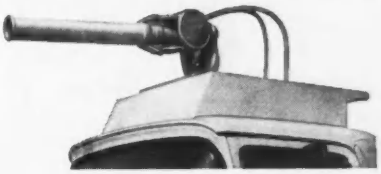
Engineers Water
...to cut fire losses

Distributors in all principal cities

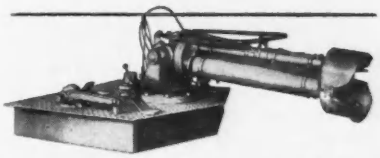
Fighting Fires Four Ways



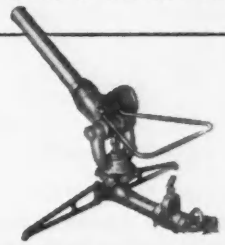
Rockwood Direct Manual Control Turrets give fire fighters "on deck" control from their cab roofs.



A Remote Manual Control Turret is easily handled by a man in the driver's seat. Ideal for fast action.



The Remote Hydraulic Control Type, single or dual model, is power controlled from within the cab. Widely used on crash rescue trucks.



The Portable Type goes off the truck and into action in seconds — wherever hose lines can be brought into action.

BUYING NEW EQUIPMENT?

Consider the products advertised in this issue.

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this month's *News and New Products*

New Aerial Platform

The Seagrave Corporation, Columbus, Ohio, is introducing an aerial platform for fire department service. Known as the Seagrave-Cemco "Eagle" it was developed and is manufactured by Cemco Industries, Incorporated, of Galion, Ohio, a division of the Springfield-Green Industries.

The aerial platform is available in heights of 65 and 85 feet. Two booms used for elevating the platform are tapered tubing of high tensile steel. According to the distributor, the booms can be raised to full height and rotated 360 degrees in 60 seconds with a 1,000 pound load on the platform.

Hydraulic lines with a strength exceeding 7,500 psi are used at all joints. The platform has guard rails from 25 to 43 inches from its floor. Two independent systems of leveling rods keep the platform level. Complete control of all boom movements is accomplished by three levers on the platform as well as a ground control which overrides the platform control. All controls are of the "dead-man" type. There is also a 4-inch water supply line and conduit for electrical and communication systems within the tapered booms.

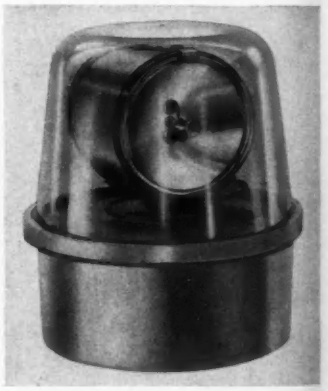
•

There has been a surprisingly high demand for NFPA's new manual "Operating Fire Department Aerial Ladders." Specially written and edited for fire chiefs and fire department training officers, the book is of interest to everyone concerned with the purchase, operation, tactical use and maintenance of aerial ladder trucks. Priced at $4 per copy, it is available from the NFPA Publications Department, 60 Batterymarch Street, Boston 10, Mass.

•

Compact Burn Spray Kit

Medical Supply Company, 1027 W. State Street, Rockford, Illinois, has designed a new 10-unit size burn spray kit, easily attached to sides of trucks, cars and emergency vehicles. Painted fire red, the kit features rounded corners, moistureproof and dustproof construction. Size is 8 by 5 by 2½ inches. Write supplier for information.



Revolving Light

Trippe Manufacturing Company, 133 N. Jefferson Street, Chicago 6, Illinois, announces a new heavy-duty twin sealed beam warning light, which revolves 360 degrees. Called "Roto-Flash," it is belt-driven and available in red, amber, blue, green and clear. Ask manufacturer for free literature.

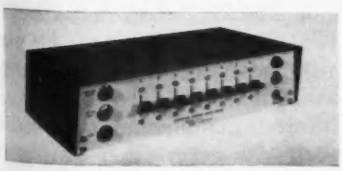
New Dry Chemical

Ansul Chemical Company, Marinette, Wisconsin, has introduced a new multi-purpose dry chemical extinguishing agent for use on class A, B, and C fires. Named "FORAY," it can be obtained in three sizes of cartridge or stored pressure-type extinguishers. Special conversion kits are available for adapting most Ansul portable extinguishers for use with the new dry chemical. The extinguishing agent has received the listing of Underwriters' Laboratories, Chicago, Illinois, for the three main classes of fire. Extinguisher models with the new agent are: Model 10, 8½ pounds; Model 20, 17 pounds; and Model 30, 25 pounds. Write to the manufacturer for details.

•

"Electralert" Home Receiver

A new electronic alarm system with voice instruction operates in conjunction with your present radio transmitter. "Electralert" privately calls your personnel at home or work. Also available are car converters to make your receiver a mobile unit. Illustrated below is the Electralert Encoder with up to eight tone signals for selective alerting and push button for voice transmission to individual receivers. Get the facts from Nuclear Electronics Corporation, 2925 North Broad Street, Philadelphia 32, Pennsylvania.



Portable Generator

The Wincharger Corporation, Sioux City 2, Iowa, has produced this new portable generator called the "Winco Super Mite." Powered by a Briggs & Stratton engine, it provides 1,500 watts of intermittent alternating current power and can be used for portable electric tools as well as for lights and other electric power. The complete unit, with carrying handle, weighs only 82 pounds. For details write to the manufacturer at the above address.

FIRE — GAS — SMOKE

The AGED, BLIND, BEDRIDDEN and HANDICAPPED need your help fast in such emergencies!

YOUR TOWN U.S.A. — I — FIRE DEPARTMENT

FD RESCUE MARKERS

help you quickly spot their homes and rooms! Use as a public service for FIRE PREVENTION WEEK, too.

SEND FOR FREE SAMPLE KIT

FD PRODUCTS

Dept. F-24

90-N1 TRACEY PL., ENGLEWOOD, N. J.

FIREMEN!

INCREASE YOUR INCOME!

Convert your spare time into steady income selling most popular line of Belts and Buckles with Fireman's personal initials, first name or nickname with miniature replicas of actual fire equipment beautifully enameled, also lapels, tie clasps, key chains, money clips, and cuff links. Excellent repeat business. We furnish you with FREE complete sales kit. Really nice part-time money producing items.

NO INVESTMENT NECESSARY!

For full particulars, write to

HOOK-FAST SPECIALTIES, INC.

Factory — 16 Eudora St.

P.O. Box 1088F Providence, R. I.

KUHN ..."LEADERS IN SPECIALIZED RECEIVING EQUIPMENT"

CRYSTAL CONTROLLED CONVERTERS

POLICE • • • FIRE

345A Complete $29.95

A new high gain Crystal Controlled Converter. Excellent sensitivity . . . Rugged construction . . . Easy to install. Designed for standard transistor car radios. Requires no high voltage supply. 30-50 MC or 150-162 MC.

KUHN CONVERTERS... the most advanced line ... designed for optimum performance.

348A Complete $34.95

Transistorized, directly Tunable Converter. Powered with self-contained mercury cell. Excellent sensitivity and stability. Designed for car, home or portable receivers. Two types available: Aircraft VHF 115-130 MC, or 150-162 MC.

344A Complete $23.95

A new low cost Crystal Controlled Converter designed for use with standard transistor car radios. Operates directly from 12V DC. Rugged construction. Good sensitivity. Range 30-50 MC.

ORDER TODAY or SEND FOR FREE CATALOG . . . containing complete information on a full line of: CONVERTERS AND RECEIVERS FOR EVERY APPLICATION

315A Complete $13.95

A low cost Tunable Converter for any 10 MC area of: 30-50 MC or 150-160 MC. Easily installed. For use with home or auto sets.

316A Directly Tunable Converter. Available in two ranges: 30-50 MC or 150-160 MC. Complete $19.95.

KUHN ELECTRONICS INC. 20 GLENWOOD CINCINNATI 17, OHIO

"SPARKY" GIVE-AWAYS AND PRIZES

FOR FIRE PREVENTION WEEK

"Sparky" give-aways will brighten up your fall Fire Prevention campaigns in schools and fire stations:

Badges
Rings
Lapel Pins
Fabric Emblems

FOR PRIZES:

Dolls
Bracelets
Tee Shirts
Sweat Shirts
"Sparky" Jewelry

SPECIAL QUANTITY DISCOUNTS

Write for Completely New Catalog!

ROBERTS CO.

BOX 444D WAYLAND, MASS.

On the double—Men and equipment make a fast getaway from Long Beach's modern Central Fire Station. Mack equipment and a force of over 400 men protect the city's 45 square mile area.

Macks help Long Beach keep its guard up

In the city of Long Beach, California, one of the nation's top fire fighting organizations, backed by 23 pieces of Mack apparatus, stands in the first line of defense against loss.

In addition to heavy concentrations of residential and industrial properties, the presence of large oil producing and storage fields greatly complicates the work of Chief Frank S. Sandeman and his men. Despite full precautions, this represents a dangerous hazard mix calling for the best equipment and techniques.

Years of fire fighting experience have taught Chief Sandeman the value of quality equipment. He makes it plain when he says, "When you're dealing with the possibility of losses that can run into multi-millions of dollars you can't afford anything but the finest apparatus. We use Macks because we feel they definitely increase the efficiency of our department."

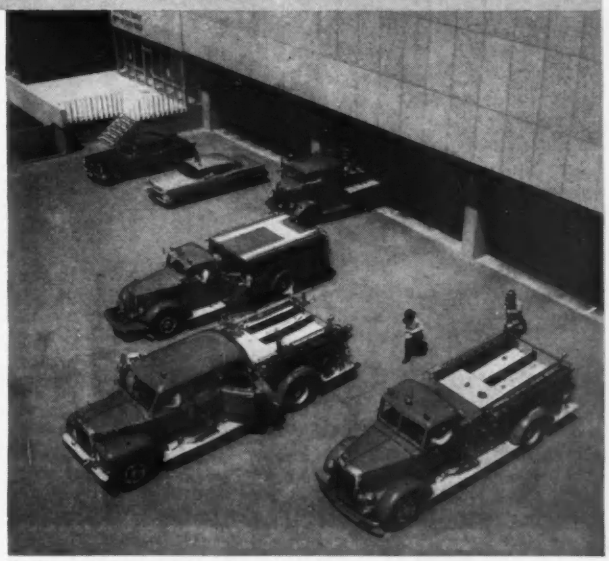
Here's why leading fire departments everywhere depend on Macks: *Custom engineering*... Mack can deliver the unit that exactly fits your needs; built with Balanced Design—the exclusive Mack practice in which every major component is engineered, manufactured and tested by Mack to work with every other component

as an integrated unit. *Dependable performance* . . . Mack fire apparatus is made to the highest standards in the industry. For sheer dependability, nothing can touch it. For sustained performance, nothing can match it. You can *always* depend on a Mack.

Your nearest Mack branch or distributor will gladly give you full details on the complete line of Mack quality fire apparatus. Mack Fire Apparatus, Allentown, Pennsylvania. Mack Trucks of Canada, Ltd., Toronto, Ontario.

8388

MACK
FIRST NAME FOR
FIRE APPARATUS



Macks and men go into action—New 1250-gallon-per-minute sedan-cab pumper in foreground is typical of Mack equipment in Long Beach's crack fire fighting organization.

COMPLETE LINE OF PUMPERS . . . 500 TO 1250 GPM . . . SQUAD AND HOSE WAGONS . . . AERIALS 65' TO 146' . . . COMBINATION LADDER TRUCKS

Choose from Barton-American

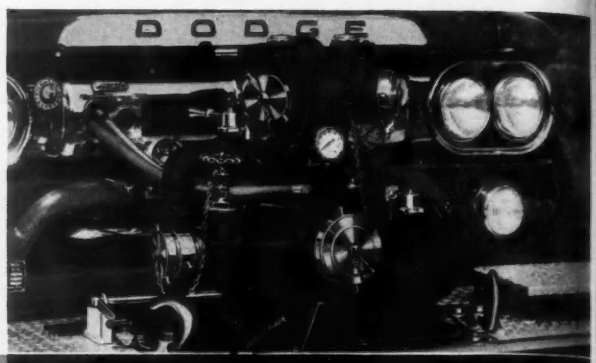
...pumps to meet all your needs...and meet them best

TYPE UA

FRONT-MOUNTED PUMPS
500-750 GPM CLASS "A" RATING

Ample pressure for fog gun operation. Fights fires "on the move".

FULL DETAILS IN BULLETIN 8330-C

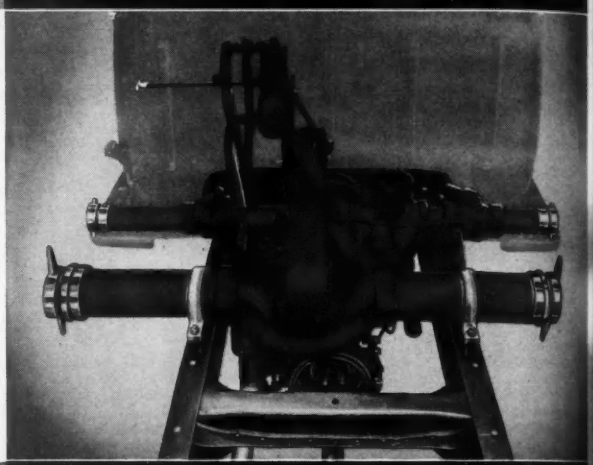


TYPE DMA

TWO-STAGE MIDSHIP PUMPS
500-750 & 1000 GPM CLASS "A" RATING

High pressure for fog gun service.
2 Independent pumps. 3 Pressure & Volume selections.

FULL DETAILS IN BULLETIN 8733



TYPE DMB

TWO, THREE & FOUR STAGE OPERATION

Pressure to 850 Lbs.

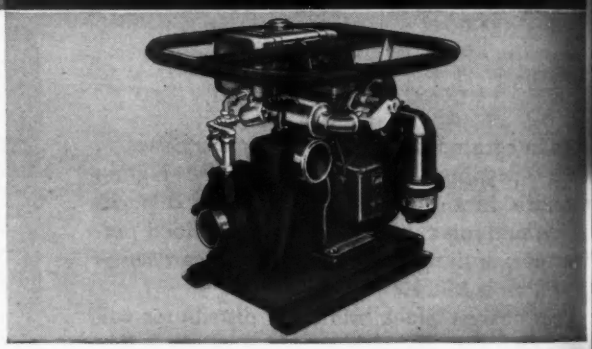
FULL DETAILS IN BULLETIN 8734

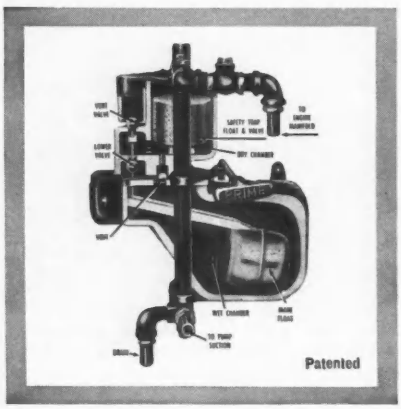
TYPE 3XD

PORTABLE PUMP
200 GPM & UP

Pressure to 90 Lbs.
Weighs only 125 Lbs.
A versatile unit for any department.

FULL DETAILS IN BULLETIN 8120





. . . and the famous Barton-American ENGINE VACUUM PRIMER

REQUIRES NO OIL, NO ADJUSTING, NO MAINTENANCE

Always operates with like-new efficiency—not affected by engine wear.
Employs a simple, trouble-proof principle.
Completely frost-proof. Always dependable.

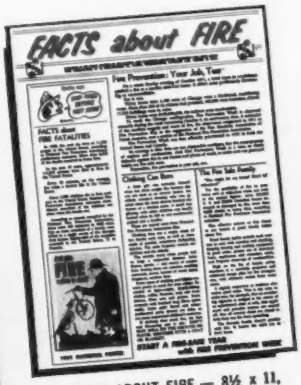
FULL DETAILS IN BULLETIN 8715

SEE YOUR NEAREST AMERICAN FIRE PUMP DEALER

AMERICAN FIRE PUMP COMPANY

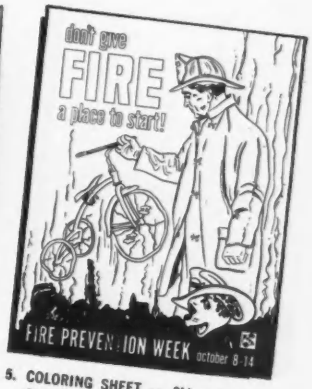
P. O. BOX 219-B
BATTLE CREEK, MICHIGAN, U. S. A.

1. POSTER— 11 x 17, Red and Black (also available on display card)

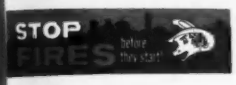


3. FACTS ABOUT FIRE — 8½ x 11, 2-page color fact and picture sheet

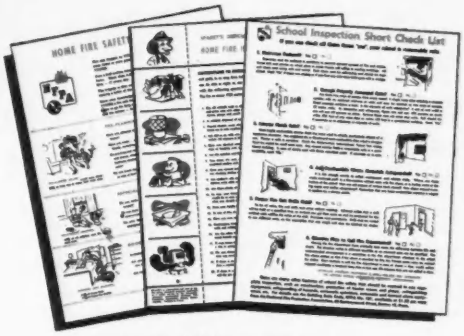
4. BLOTTER — 3¼ x 5½, 2-color



5. COLORING SHEET — 8½ x 11, Fire Prevention Week poster for children to color



2. STREAMER — 4 x 16, 2-color



10. INSPECTION BLANKS— 8½ x 11
(a) Home Check List for self inspections
(b) Sparky's Home Inspection Blank
(c) School Check List for school and public distribution

6. STAMP — 1½ x 1¼, 2-color, perforated, for use on outgoing mail

7. FLYER — 3¼ x 5¼ envelope stuffer, Story of Fire Prevention Week

11. SPARKY COMIC BOOK — 7½ x 10, full color 16-page cartoon story of fire departments

12. COMIC BOOKS — 5 x 7, full color
(a) Early Man and Fire
(b) More About Fire

13. COLORING BOOK — 6 x 9, 16 pages of coloring for children, with fire prevention story and new Sparky song

8. TELEPHONE STICKER — 1 x 4, press-on sticker for emergency phone numbers

9. SLOGAN STICKER — 1 x 4, press-on sticker for posting on workbenches, desks, doors, etc.

(a) (b) (c) (d)

14. FOLDERS — in color, for mailings, home and employe distribution

(a) (b) (c) (d)

15. FOLDERS — in color, for mailings, home and employe distribution

(a) (b) (c) (d)

16. FOLDERS — in color, for mailings, employe and home distribution

USE EASY ORDER BLANK ON BACK COVER

FIREMEN
60 BATTERYMARCH ST.
BOSTON 10, MASS., U. S. A.

Form 3547 Requested.

Order these NOW — for

FIRE PREVENTION WEEK

EASY ORDER BLANK

Order early to forestall transportation delays. Orders received after September 15 cannot be accepted.

Current Materials — Illustrated

Quantity — *Amount*

..... 1. Poster — $3.00 per 100, $25.00 per 1000 $.....
..... Display Card Poster, 25¢ ea., discount for quantities .....
..... 2. Streamer — $1.50 per 100, $12.50 per 1000 .....
..... 3. Facts About Fire — $2.00 per 100, $15.00 per 1000 .....
..... 4. Blotter — $1.50 per 100, $10.00 per 1000 .....
..... 5. Coloring Sheet — 75¢ per 100, $6.00 per 1000 .....
..... 6. Stamps — 30¢ per 100, discount for quantities .....
..... 7. Flyer — 75¢ per 100, $6.00 per 1000 .....

Undated Materials — Illustrated

..... 8. Phone Sticker — $1.50 per 100, $10.00 per 1000 .....
..... 9. Slogan Sticker — $1.50 per 100, $10.00 per 1000 .....
10. Inspection Blanks
..... (a) Home Check List — $1.50 per 100, $10.00 per 1000 .....
..... (b) Sparky's Home Blank — $1.00 per 100, $7.50 per 1000 .....
..... (c) School Check List — $1.50 per 100, $10.00 per 1000 .....
..... 11. Sparky Comic Book — 5¢ ea., $5.00 per 100, $45.00 per 1000 .....
12. Comic Books — 5¢ ea., $5.00 per 100, $45.00 per 1000
..... (a) Early Man and Fire .....
..... (b) More About Fire .....
..... 13. Sparky Coloring Book — 5¢ ea., $5.00 per 100, $45.00 per 1000 .....
..... 14. (a) Folder — $2.00 per 100, $17.50 per 1000 .....
..... (b) Folder — $1.50 per 100, $12.50 per 1000 .....
..... (c) Folder — $2.00 per 100, $17.50 per 1000 .....
..... (d) Folder — $1.50 per 100, $12.50 per 1000 .....
..... 15. (a) Folder — $1.50 per 100, $12.50 per 1000 .....
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..... (c) Folder — $1.50 per 100, $12.50 per 1000 .....
..... (d) Folder — $1.50 per 100, $12.50 per 1000 .....

Quantity — *Amount*

..... 16. (a) Folder — $1.50 per 100, $12.50 per 1000 $.....
..... (b) Folder — $2.50 per 100, $20.00 per 1000 .....
..... (c) Folder — $1.50 per 100, $12.50 per 1000 .....
..... (d) Folder — $2.00 per 100, $17.50 per 1000 .....

Undated Materials — Not Illustrated

..... Any Fire Traps in Your Home? (16-page booklet on home fire hazards) — $9.00 per 100, $80.00 per 1000 .....
..... Fire! — What Would You Do? (16-page booklet how to avoid and handle home fires) — $9.00 per 100, $80.00 per 1000 .....
Sparky 1-minute Fire Safety Film with new Sparky Song
..... 16 mm print for TV, schools, etc. — $5.00 each .....
..... 35 mm print for theatres — $9.75 .....
..... Sparky Face Mask for Sparky costume, rubber — $1.00 each .....
..... Sparky 5-foot Pattern-Poster, $1.35 each .....
..... Sparky Lapel Tab; 3-color, 1-inch diameter, light metal bend over tab — $2.00 per 100, $15.00 per 1000 .....
..... Sparky membership kit; badge, card, inspector's manual — 25¢ each, 20¢ each in lots of 5 or more .....
..... Story of Sparky's Fire Dept.; 8-page booklet on children's fire safety program — no charge, 1 copy per order .....

Total $.....

Prices subject to 2% discount if payment accompanies order. All prices F.O.B. Boston. ORDERS SHIPPED EXPRESS COLLECT. Single copies of all items except films, pattern-posters, masks and display cards sent without charge upon request. Items No. 1, 4, 5, 7, 10, 11, 12, 13, 14, 15, 16 have space for imprints of names of campaign sponsors which may be added locally by purchasers.

NATIONAL FIRE PROTECTION ASSOCIATION
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Materials Illustrated on Inside Back Cover

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